MS2690A/MS2691A/MS2692A
and
MS2830A/MS2840A/MS2850A
Signal Analyzer
Operation Manual
Spectrum Analyzer Function
Remote Control

54th Edition

- For safety and warning information, please read this manual before attempting to use the equipment.
- Additional safety and warning information is provided within the MS2690A/MS2691A/MS2692A Signal Analyzer Operation Manual (Mainframe Operation), MS2830A Signal Analyzer Operation Manual (Mainframe Operation), MS2840A Signal Analyzer Operation Manual (Mainframe Operation), or MS2850A Signal Analyzer Operation Manual (Mainframe Operation). Please also refer to them before using the equipment.
- Keep this manual with the equipment.

ANRITSU CORPORATION
Safety Symbols

To prevent the risk of personal injury or loss related to equipment malfunction, Anritsu Corporation uses the following safety symbols to indicate safety-related information. Ensure that you clearly understand the meanings of the symbols BEFORE using the equipment. Some or all of the following symbols may be used on all Anritsu equipment. In addition, there may be other labels attached to products that are not shown in the diagrams in this manual.

Symbols used in manual

⚠️ **DANGER**  This indicates a very dangerous procedure that could result in serious injury or death if not performed properly.

⚠️ **WARNING**  This indicates a hazardous procedure that could result in serious injury or death if not performed properly.

⚠️ **CAUTION**  This indicates a hazardous procedure or danger that could result in light-to-severe injury, or loss related to equipment malfunction, if proper precautions are not taken.

Safety Symbols Used on Equipment and in Manual

The following safety symbols are used inside or on the equipment near operation locations to provide information about safety items and operation precautions. Ensure that you clearly understand the meanings of the symbols and take the necessary precautions BEFORE using the equipment.

- This indicates a prohibited operation. The prohibited operation is indicated symbolically in or near the barred circle.

- This indicates an obligatory safety precaution. The obligatory operation is indicated symbolically in or near the circle.

- This indicates a warning or caution. The contents are indicated symbolically in or near the triangle.

- This indicates a note. The contents are described in the box.

- These indicate that the marked part should be recycled.
Notes On Export Management

This product and its manuals may require an Export License/Approval by the Government of the product's country of origin for re-export from your country.

Before re-exporting the product or manuals, please contact us to confirm whether they are export-controlled items or not.

When you dispose of export-controlled items, the products/manuals need to be broken/shredded so as not to be unlawfully used for military purpose.
About This Manual

- Operation manual configuration

The operation manual configuration of the MS2690A/MS2691A/MS2692A, MS2830A, MS2840A, and MS2850A Signal Analyzer is shown below.
• Signal Analyzer Operation Manual (Mainframe Operation)
• Signal Analyzer Operation Manual (Mainframe Remote Control)
  Description of basic operations, maintenance procedures, common
  functions and common remote functions of the mainframe

• Signal Analyzer Operation Manual (Signal Analyzer Function)
• Signal Analyzer Operation Manual (Signal Analyzer Function Remote
  Control)
  Description of basic operations, functions and remote functions of the
  signal analyzer

• Signal Analyzer Operation Manual (Spectrum Analyzer Function)
• Signal Analyzer Operation Manual (Spectrum Analyzer Function Remote
  Control) <This document>
  Description of basic operations, functions and remote functions of the
  spectrum analyzer

• Signal Analyzer Operation Manual (Phase Noise Measurement Function)
• Signal Analyzer Operation Manual (Phase Noise Measurement Function
  Remote Control)
  Description of basic operations, functions and remote functions of the
  Phase Noise

**Convention Used in This Manual**

Except where there is a good reason to do otherwise, this manual
assumes the use of MS269xA.

Note that the descriptions in this manual also apply to MS2830A,
MS2840A, or MS2850A.
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Chapter 1 Overview

This chapter provides an overview of the remote control of the Spectrum Analyzer function (hereinafter, referred to as “this application”).

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1.1 Overview

Automatic measurement can be performed by using this instrument in connection with an external controller (PC). This instrument is standard equipped with GPIB, Ethernet, and USB interfaces. You can also select a remote control command from the SCPI mode, which is a command format defined by the SCPI Consortium, and Native mode, which is our unique format.

See the MS2690A/MS2691A/MS2692A and MS2830A/MS2840A/MS2850A Signal Analyzer Operation Manual (Mainframe Remote Control) for how to switch the language mode.

You can use the Native mode by converting SCPI commands into Native ones. See the MS2690A/MS2691A/MS2692A and MS2830A/MS2840A/MS2850A Signal Analyzer Operation Manual (Mainframe Remote Control) for details.
Chapter 2 SCPI Device Message Details

This chapter describes detailed specifications on SCPI remote control commands for executing functions of this application in alphabetical order. Refer to the \textit{MS2690A/MS2691A/MS2692A and MS2830A/MS2840A/MS2850A Signal Analyzer Operation Manual (Mainframe Remote Control)} for detailed specifications on IEEE488.2 common device messages and application common device messages.

2.1 Frequency/Span

\begin{itemize}
\item [:SENSe]:FREQuency:CENTer \texttt{<freq>}
\item [:SENSe]:FREQuency:CENTer?
\item [:SENSe]:FREQuency:CENTer:STEP[:INCRement] \texttt{<freq>}
\item [:SENSe]:FREQuency:CENTer:STEP[:INCRement]?
\item [:SENSe]:FREQuency:OFFSet \texttt{<freq>}
\item [:SENSe]:FREQuency:OFFSet?
\item [:SENSe]:FREQuency:OFFSet:STATe \texttt{ON|OFF|1|0}
\item [:SENSe]:FREQuency:OFFSet:STATe?
\item [:SENSe]:FREQuency:SPAN \texttt{<freq>}
\item [:SENSe]:FREQuency:SPAN?
\item [:SENSe]:FREQuency:SPAN:FULL
\item [:SENSe]:FREQuency:START \texttt{<freq>}
\item [:SENSe]:FREQuency:START?
\item [:SENSe]:FREQuency:STOP \texttt{<freq>}
\item [:SENSe]:FREQuency:STOP?
\item [:SENSe]:FREQuency:SPAN:ZERO
\item [:SENSe]:FREQuency:BAND:MODE \texttt{NORMal|SPURious}
\item [:SENSe]:FREQuency:BAND:MODE?
\item [:SENSe]:FREQuency:BAND:MODE:STATe?
\item [:SENSe]:FREQuency:DOMain:COUPle \texttt{ON|OFF|1|0}
\item [:SENSe]:FREQuency:DOMain:COUPle?
\item [:SENSe]:FREQuency:SYNThesis[:STATe] \texttt{BPHase|NORMal|FAST}
\item [:SENSe]:FREQuency:SYNThesis[:STATe]?
\end{itemize}

2.2 Level

\begin{itemize}
\item [:DISPlay:WINDow\[1\]:TRACe\[1\]:Y:\[SCALe\]:RLEVel \texttt{<real>}
\item [:DISPlay:WINDow\[1\]:TRACe\[1\]:Y:\[SCALe\]:RLEVel?}
\item [:SENSe]:POWer\[RF\]:ATTenuation \texttt{<rel_ampl>}
\item [:SENSe]:POWer\[RF\]:ATTenuation?
\item [:SENSe]:POWer\[RF\]:ATTenuation:AUTO \texttt{ON|OFF|1|0}
\item [:SENSe]:POWer\[RF\]:ATTenuation:AUTO?
\item [:DISPlay:WINDow\[1\]:TRACe\[1\]:Y:\[SCALe\]:[LOGarithmetic]:PDIVision \texttt{<rel_ampl>}
\item [:DISPlay:WINDow\[1\]:TRACe\[1\]:Y:\[SCALe\]:[LOGarithmetic]:PDIVision?}
\item [:DISPlay:WINDow\[1\]:TRACe\[1\]:Y:\[SCALe\]:SPACing \texttt{LInear|LOGarithmic}
\item [:DISPlay:WINDow\[1\]:TRACe\[1\]:Y:\[SCALe\]:SPACing?}
\item [:UNIT:POWer DBM|DBMV|V|W|DBUV|DBUVE|DBUVM}
\end{itemize}

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[:SENSe]:SWEep:EGATe:VIEW:BANDwidth:VIDeo:AUTO ON|OFF|1|0 .............................. 2-309
[:SENSe]:SWEep:EGATe:VIEW:BANDwidth:VIDeo:AUTO? .................................................. 2-310
[:SENSe]:SWEep:EGATe:VIEW:BANDwidth:VIDeo <freq> .................................................. 2-311
[:SENSe]:SWEep:EGATe:VIEW:BANDwidth:VIDeo? ........................................................... 2-311
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[:SENSe]:SWEep:EGATe:VIEW:POINts <integer> ............................................................... 2-314
[:SENSe]:SWEep:EGATe:VIEW:POINts? ............................................................................. 2-315
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[:SENSe]:SWEep:EGATe:VIEW:FREQuency:AUTO? .......................................................... 2-316
[:SENSe]:SWEep:EGATe:VIEW:FREQuency <freq> ............................................................ 2-317
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[:SENSe]:SWEep:EGATe:HOLDoff:STATe OFF|ON|0|1 ...................................................... 2-320
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[:CALCulate:ACPower:CORRection:NOISe[:AUTO] ON|OFF|1|0 .............................................. 2-364

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[:CALCulate:ACPower:OFFSet[1]:BANDwidth[:INTegration] <freq> .............................................. 2-366

[:SENSe]:ACPower:OFFSet[1]:BANDwidth[:INTegration]? ........................................................... 2-366

[:CALCulate:ACPower:OFFSet[1]:BANDwidth[:INTegration]? ..................................................... 2-367

[:SENSe]:ACPower:CARRier[1]:LIST:BANDwidth[:INTegration] <freq> ...................................... 2-367

[:CALCulate:ACPower:CARRier[1]:LIST:BANDwidth[:INTegration] <freq> ...................................... 2-368

[:SENSe]:ACPower:CARRier[1]:LIST:BANDwidth[:INTegration]? .................................................. 2-368

[:CALCulate:ACPower:CARRier[1]:LIST:BANDwidth[:INTegration]? ............................................ 2-369

[:SENSe]:ACPower:CARRier[1]:LIST:BANDwidth[:INTegration] <freq> ........................................ 2-370

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[:CALCulate:ACPower:CARRier[1]:RCFRequency? ................................................................. 2-373

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[:CALCulate:ACPower:CARRier[1]:COUNt <integer> ................................................................. 2-374

[:SENSe]:ACPower:CARRier[1]:COUNt? ....................................................................................... 2-374

[:CALCulate:ACPower:CARRier[1]:COUNt? .............................................................................. 2-375

[:SENSe]:ACPower:CARRier[1]:LIST:WIDTH <freq> .............................................................. 2-375

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[:SENSe]:ACPower:CARRier[1]:LIST:WIDTH? ............................................................................ 2-376

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[:SENSe]:ACPower:OFFSet[1]:LIST:STATe ON|OFF|1|0,ON|OFF|1|0,ON|OFF|1|0 ............... 2-377

[:CALCulate:ACPower:OFFSet[1]:LIST:STATe ON|OFF|1|0,ON|OFF|1|0,ON|OFF|1|0 .............. 2-378

[:SENSe]:ACPower:OFFSet[1]:LIST:STATe? ............................................................................. 2-378

[:CALCulate:ACPower:OFFSet[1]:LIST:STATe? ........................................................................ 2-379

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[:CALCulate:ACPower:CARRier[1]:LIST:METHod IBW|RRC|RC ............................................... 2-381

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[:SENSe]:ACPower:CARRier[1]:FILTer:TYPE RECT|NYQuist|RNYQuist ............................... 2-382

[:CALCulate:ACPower:CARRier[1]:FILTer:TYPE RECT|NYQuist|RNYQuist ............................... 2-383

[:SENSe]:ACPower:CARRier[1]:FILTer:TYPE? .......................................................................... 2-383

[:CALCulate:ACPower:CARRier[1]:FILTer:TYPE? .............................................................. 2-384

[:SENSe]:ACPower:FILTer[:RRC]:[STATe] OFF|ON|0|1 ............................................................ 2-384

[:CALCulate:ACPower:FILTer[:RRC]:[STATe] OFF|ON|0|1 .......................................................... 2-385

[:CALCulate:ACPower:FILTer[:RRC]:[STATe] OFF|ON|0|1 .......................................................... 2-385
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:CALCulate:ACPower:FILTER[RRC]:[STATE]?
:CALCulate:ACPower:OFFSet[1]:FILTER:TYPE RECT|NYQuist|RNYQuist
[:SENSe]:ACPower:OFFSet[1]:FILTER:TYPE?
:CALCulate:ACPower:OFFSet[1]:FILTER:TYPE?
[:SENSe]:ACPower:ADVanced:OFFSet:MODE NORMal|ADVanced
:CALCulate:ACPower:ADVanced:OFFSet:MODE?
[:SENSe]:ACPower:ADVanced:OFFSet:BANDwidth[:INtegration]
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:DISPlay:ACPower:RESult:TYPE?
[:SENSe]:ACPower:CARRier[1]:LIST:FILTer:ALPHa <real>
:CALCulate:ACPower:CARRier[1]:LIST:FILTer:ALPHa <real>
:CALCulate:ACPower:CARRier[1]:LIST:FILTer:ALPHa?
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[:SENSe]:ACPower:AVERage:COUNt <integer> .......................................................... 2-429
[:SENSe]:ACPower:AVERage:COUNt? ................................................................................ 2-429
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[:SENSe]:ACPower:BANDwidth[:RESolution] <freq> ............................................................ 2-431
[:SENSe]:ACPower:BANDwidth[:RESolution] <freq> ............................................................ 2-431
[:SENSe]:ACPower:BANDwidth[:RESolution] <freq> ............................................................ 2-431
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[:SENSe]:ACPower:BANDwidth[:RESolution] <freq> ............................................................ 2-432
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:CALCulate:ACPower:BANDwidth[:RESolution] AUTO ON|OFF|0|1 .................................................. 2-433
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[:SENSe]:ACPower:BANDwidth[:RESolution] RGB <freq> .......................... 2-437
[:SENSe]:ACPower:BANDwidth[:RESolution] RGB <freq> .......................... 2-437
[:SENSe]:ACPower:BANDwidth[:RESolution] RGB <freq> .......................... 2-437
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[:SENSe]:ACPower:BANDwidth[:RESolution] RGB? ............................................................. 2-438
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[:SENSe]:ACPower:DETector[:FUNCtion] NORMal|POSITive|SAMPLE|NEGative|RMS|QPEak|CAVerage|CRMS .................................................. 2-439
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:CALCulate:ACPower:DETector[:FUNCTION]?

[:SENSe]:ACPower:FREQuency:SPAN <freq>

[:SENSe]:ACPower:FREQuency:SPAN?

[:SENSe]:ACPower:FREQuency:SPAN:FULL

[:SENSe]:ACPower:SWEep:POINts <integer>

[:SENSe]:ACPower:SWEep:POINts?

[:SENSe]:ACPower:SWEep:TIME <time>

[:SENSe]:ACPower:SWEep:TIME?

[:SENSe]:ACPower:SWEep:TIME:AUTO OFF|ON|0|1

[:SENSe]:ACPower:SWEep:TIME:AUTO?

:CALCulate:ACPower:MARKer[1]|2|3|4|5|6|7|8|9|10:REFerence <integer>

:CALCulate:ACPower:MARKer[1]|2|3|4|5|6|7|8|9|10:REFerence?

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[:SENSe]:BPWer|:TXPower[:STATe] ON|OFF|1|0

:CALCulate:BPWer|:TXPower[:STATe] ON|OFF|1|0

[:SENSe]:BPWer|:TXPower[:STATe]?

:CALCulate:BPWer|:TXPower[:STATe]?

[:SENSe]:BPWer|:TXPower:CORRection:NOISe[:AUTO] ON|OFF|1|0

:CALCulate:BPWer|:TXPower:CORRection:NOISe[:AUTO] ON|OFF|1|0

[:SENSe]:BPWer|:TXPower:CORRection:NOISe[:AUTO]?

:CALCulate:BPWer|:TXPower:CORRection:NOISe[:AUTO]?

[:SENSe]:BPWer|:TXPower:BURSt:STARt <time>

:CALCulate:BPWer|:TXPower:BURSt:STARt <time>

[:SENSe]:BPWer|:TXPower:BURSt:STARt?

:CALCulate:BPWer|:TXPower:BURSt:STARt?

[:SENSe]:BPWer|:TXPower:BURSt:STOP <time>

:CALCulate:BPWer|:TXPower:BURSt:STOP <time>

[:SENSe]:BPWer|:TXPower:BURSt:STOP?

:CALCulate:BPWer|:TXPower:BURSt:STOP?

:CONFigure:BPWer|:TXPower

:INITiate:BPWer|:TXPower

:FETCh:BPWer|:TXPower[n]?

:READ:BPWer|:TXPower[n]?

:MEASure:BPWer|:TXPower[n]?

[:SENSe]:BPWer|:TXPower:BURSt:WIDTh <time>

[:SENSe]:BPWer|:TXPower:BURSt:WIDTh?

:DISPlay:BPWer|:TXPower:ANNotation:TITLe:DATA <string>

:DISPlay:BPWer|:TXPower:ANNotation:TITLe:DATA?

:DISPlay:BPWer|:TXPower:VIEW[1]:WINDow[1]:TRACe:[Y]:SCALe:[PDIvision <rel_ampl>]

:DISPlay:BPWer|:TXPower:VIEW[1]:WINDow[1]:TRACe:[Y]:SCALe:[PDIvision?

:DISPlay:BPWer|:TXPower:VIEW[1]:WINDow[1]:TRACe:[Y]:SCALe:[RLEVel <real>]

:DISPlay:BPWer|:TXPower:VIEW[1]:WINDow[1]:TRACe:[Y]:SCALe:[RLEVel?

:TRIGger:BPWer|:TXPower[:SEQuence]:SOURce

EXTernal[1]|IMMediate[WIF|RFBurst|VIDeo|SG|BBIF|FRAMe]
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:TRIGger:BPOWer:TXPower:SEQuence:SOURce?

[:SENSe]:BPOWer:TXPower:AVERage:COUNT <integer> .................................................. 2-465
[:SENSe]:BPOWer:TXPower:AVERage:COUNT? ................................................................ 2-465
[:SENSe]:BPOWer:TXPower:AVERage[:STATe] ON|OFF|1|0 .............................................. 2-466
[:SENSe]:BPOWer:TXPower:AVERage[:STATe]?

[:SENSe]:BPOWer:TXPower:SWEep:TIME <time> ............................................................ 2-467

[:SENSe]:BPOWer:TXPower:SWEep:TIME?

:CALCulate:BPOWer:TXPower:MARKer[1]|2|3|4|5|6|7|8|9|10:MODE
 NORMAL|POSition|DELTa|FIXed|OFF ....................................................................... 2-468


:CALCulate:BPOWer:TXPower:MARKer[1]|2|3|4|5|6|7|8|9|10:X <freq>|<time> .......................... 2-469


:CALCulate:BPOWer:TXPower:MARKer:AOFF ................................................................. 2-471


:CALCulate:BPOWer:TXPower:BANDwidth:RESolution <freq> ........................................ 2-473

:CALCulate:BPOWer:TXPower:BANDwidth:RESolution <freq> ........................................... 2-474

:CALCulate:BPOWer:TXPower:BANDwidth:RESolution? .................................................... 2-474

:CALCulate:BPOWer:TXPower:BANDwidth:RESolution? .................................................... 2-475

:CALCulate:BPOWer:TXPower:BANDwidth:RESolution:MODE NORMAL|CISPr ...................... 2-475

:CALCulate:BPOWer:TXPower:BANDwidth:RESolution:MODE NORMAL|CISPr ...................... 2-476


:CALCulate:BPOWer:TXPower:MARKer:AOFF ................................................................. 2-478


2.11 Channel Power ......................................................... 2-479

[:SENSe]:CHPower[:STATe] ON|OFF|1|0 ............................................................... 2-482

:CALCulate:CHPower[:STATe] ON|OFF|1|0 ............................................................... 2-482

[:SENSe]:CHPower[:STATe]?

[:SENSe]:CHPower[:STATe]?

[:SENSe]:CHPower:FREQuency:CENTer <freq> ......................................................... 2-483

:CALCulate:CHPower:FREQuency:CENTer <freq> ......................................................... 2-483

:CALCulate:CHPower:FREQuency:CENTer? ................................................................. 2-484

:CALCulate:CHPower:FREQuency:CENTer? ................................................................. 2-485

[:SENSe]:CHPower:BANDwidth:INTegration <freq> ..................................................... 2-486

:CALCulate:CHPower:BANDwidth:INTegration <freq> ................................................... 2-486

:CALCulate:CHPower:BANDwidth:INTegration <freq> ................................................... 2-486


[:SENSe]:CHPower:BANDwidth:INTegration? .............................................................. 2-487

[:SENSe]:CHPower:FILTer:TYPE RECT|NYQuist|RNYQuist ............................................. 2-488

:CALCulate:CHPower:FILTer:TYPE RECT|NYQuist|RNYQuist ............................................. 2-488

[:SENSe]:CHPower:FILTer:TYPE? .................................................................................. 2-489
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:CALCulate:CHPower:FILTER:TYPE?

[:SENSe]:CHPower:FILTER[:RRC][:STATE] ON|OFF|1|0

:CALCulate:CHPower:FILTER[:RRC][:STATE] ON|OFF|1|0

[:SENSe]:CHPower:FILTER[:RRC][:STATE]?

[:SENSe]:CHPower:FILTER[:RRC]:ALPHA <real>

[:SENSe]:CHPower:FILTER[:RRC]:ALPHA?

:CONFigure:CHPower

:INITiate:CHPower

:FETCh:CHPower[n]?

:FETCh:CHPower?

:FETCh:CHPower:DENSity?

:READ:CHPower[n]?

:READ:CHPower?

:READ:CHPower:DENSity?

:MEASure:CHPower[n]?

:MEASure:CHPower?

:MEASure:CHPower:DENSity?

:CALCulate:CHPower:MARKer:AOFF

:CALCulate:CHPower:MARKer[1]|2|3|4|5|6|7|8|9|10:MAXimum

:CALCulate:CHPower:MARKer[1]|2|3|4|5|6|7|8|9|10:MAXimum:POWer

:CALCulate:CHPower:MARKer[1]|2|3|4|5|6|7|8|9|10:MINimum

:CALCulate:CHPower:MARKer[1]|2|3|4|5|6|7|8|9|10:MODE NORMal|POSition|DELTa|FIXed|OFF

:CALCulate:CHPower:MARKer[1]|2|3|4|5|6|7|8|9|10:MODE?

:CALCulate:CHPower:MARKer[1]|2|3|4|5|6|7|8|9|10:X <freq>|<time>

:CALCulate:CHPower:MARKer[1]|2|3|4|5|6|7|8|9|10:X?


:CALCulate:CHPower:MARKer[1]|2|3|4|5|6|7|8|9|10:Y?

:DISPlay:CHPower:ANNotation:TITLe:DATA <string>

:DISPlay:CHPower:ANNotation:TITLe:DATA?

:DISPlay:CHPower:VIEW[1]:WINDow[1]:TRACe:Y[:SCALE]:PDIVision <rel_ampl>

:DISPlay:CHPower:VIEW[1]:WINDow[1]:TRACe:Y[:SCALE]:PDIVision?

:DISPlay:CHPower:VIEW[1]:WINDow[1]:TRACe:Y[:SCALE]:RLEVel <real>

:DISPlay:CHPower:VIEW[1]:WINDow[1]:TRACe:Y[:SCALE]:RLEVel?

:TRIGger:CHPower:[SEQUence]:SOURCe EXTernal[1]|IMMediate|WIF|RFBurst|VIDEO|SG|BBIF|FRAME

[:SENSe]:CHPower:AVERage:COUNt <integer>

[:SENSe]:CHPower:AVERage:COUNt?

[:SENSe]:CHPower:AVERage[:STATE] ON|OFF|1|0

[:SENSe]:CHPower:AVERage[:STATE]?
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[:SENSe]:CHPower:BANDwidth[:RESolution] <freq> ............................................................ 2-514
:CALCulate:CHPower:BANDwidth[:RESolution] <freq> ........................................................ 2-514
[:SENSe]:CHPower:BANDwidth[:RESolution]? ..................................................................... 2-515
:CALCulate:CHPower:BANDwidth[:RESolution]? ................................................................. 2-515
[:SENSe]:CHPower:BANDwidth[:RESolution]:AUTO ON|OFF|1|0 ........................................ 2-516
:CALCulate:CHPower:BANDwidth[:RESolution]:AUTO ON|OFF|1|0 .................................... 2-516
[:SENSe]:CHPower:BANDwidth[:RESolution]:AUTO? .......................................................... 2-517
:CALCulate:CHPower:BANDwidth[:RESolution]:AUTO? ...................................................... 2-517
[:SENSe]:CHPower:BANDwidth[:RESolution]:MODE NORMal|CISPr .................................. 2-518
:CALCulate:CHPower:BANDwidth[:RESolution]:MODE NORMal|CISPr .............................. 2-518
[:SENSe]:CHPower:BANDwidth[:RESolution]:MODE? ......................................................... 2-519
:CALCulate:CHPower:BANDwidth[:RESolution]:MODE? ...................................................... 2-519
[:SENSe]:CHPower:BANDwidth:VIDeo <freq> ...................................................................... 2-520
[:SENSe]:CHPower:BANDwidth:VIDeo? ............................................................................... 2-520
[:SENSe]:CHPower:BANDwidth:VIDeo:AUTO OFF|ON|0|1 .................................................. 2-521
[:SENSe]:CHPower:BANDwidth:VIDeo:AUTO? .................................................................... 2-521
[:SENSe]:CHPower:DETector[:FUNCtion]
  NORMal|POSitive|SAMPle|NEGative|RMS|QPEak|CAVerage|CRMS ..................... 2-522
:CALCulate:CHPower:DETector[:FUNCtion]
  NORMal|POSitive|SAMPle|NEGative|RMS|QPEak|CAVerage|CRMS ..................... 2-522
[:SENSe]:CHPower:DETector[:FUNCtion]? ........................................................................... 2-523
:CALCulate:CHPower:DETector[:FUNCtion]? ........................................................................ 2-523
[:SENSe]:CHPower:FREQuency:SPAN <freq> ..................................................................... 2-524
[:SENSe]:CHPower:FREQuency:SPAN? .............................................................................. 2-524
[:SENSe]:CHPower:FREQuency:SPAN:FULL ...................................................................... 2-524
[:SENSe]:CHPower:SWEep:POINts <integer> ..................................................................... 2-525
[:SENSe]:CHPower:SWEep:POINts? .................................................................................... 2-525
[:SENSe]:CHPower:SWEep:TIME <time> ............................................................................. 2-525
[:SENSe]:CHPower:SWEep:TIME? ....................................................................................... 2-526
[:SENSe]:CHPower:SWEep:TIME:AUTO OFF|ON|0|1 ......................................................... 2-526
[:SENSe]:CHPower:SWEep:TIME:AUTO? ............................................................................ 2-527
:CALCulate:CHPower:MARKer[1]|2|3|4|5|6|7|8|9|10:REFerence <integer> ......................... 2-527
2.12 OBW ......................................................... 2-529
[:SENSe]:OBWidth[:STATe] ON|OFF|1|0 .............................................................................. 2-532
[:SENSe]:OBWidth[:STATe]? .......................................................................................... 2-532
:CALCulate:OBWidth[:STATe] ON|OFF|1|0 .......................................................................... 2-533
:CALCulate:OBWidth[:STATe]? ........................................................................................ 2-533
[:SENSe]:OBWidth:METHod NPERcent|XDB .................................................................. 2-534
[:SENSe]:OBWidth:METHod? .......................................................................................... 2-534
:CALCulate:OBWidth:METHod NPERcent|XDB ................................................................. 2-535
:CALCulate:OBWidth:METHod? ........................................................................................ 2-535
[:SENSe]:OBWidth:PERCent <real> .................................................................................. 2-536
[:SENSe]:OBWidth:PERCent? .......................................................................................... 2-537
:CALCulate:OBWidth:PERCent <real> ................................................................................ 2-538
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:CALCulate:OBWidth:PERCent?

[:SENSe]:OBWidth:XDB <rel_ampl> ................................................................. 2-539
[:SENSe]:OBWidth:XDB? ................................................................................... 2-540

:CALCulate:OBWidth:XDB <rel_ampl> ................................................................. 2-541
:CALCulate:OBWidth:XDB? ................................................................................... 2-541

:CONFigure:OBWidth ......................................................................................... 2-542

:INITiate:OBWidth .............................................................................................. 2-542

:FETCh:OBWidth[n]? ........................................................................................... 2-543
:FETCh:OBWidth:FERRor? .................................................................................... 2-545

:READ:OBWidth[n]? ............................................................................................ 2-546
:READ:OBWidth:FERRor? .................................................................................... 2-546

:MEASure:OBWidth[n]? ....................................................................................... 2-546
:MEASure:OBWidth:FERRor? ................................................................................ 2-547

:CALCulate:OBWidth:MARKer:AOFF .................................................................. 2-547

:CALCulate:OBWidth:MARKer[1]|2|3|4|5|6|7|8|9|10:MAXimum ........................................ 2-548

:CALCulate:OBWidth:MARKer[1]|2|3|4|5|6|7|8|9|10:MINimum ........................................ 2-549

:CALCulate:OBWidth:MARKer[1]|2|3|4|5|6|7|8|9|10:MODE NORMal|POSition|DELTa|FIXed|OFF .................................................. 2-550


:CALCulate:OBWidth:MARKer[1]|2|3|4|5|6|7|8|9|10:X <freq>|<time> ................................... 2-551


:DISPlay:OBWidth:ANNotation:TITLe:DATA <string> ........................................ 2-554
:DISPlay:OBWidth:ANNotation:TITLe:DATA? ....................................................... 2-554

:DISPlay:OBWidth:VIEW[1]:WINDow[1]:TRACe:Y[:SCALe]:PDIVision <rel_ampl> .... 2-555

:DISPlay:OBWidth:VIEW[1]:WINDow[1]:TRACe:Y[:SCALe]:RLEVel <real> ............... 2-557
:DISPlay:OBWidth:VIEW[1]:WINDow[1]:TRACe:Y[:SCALe]:RLEVel? ......................... 2-557

:TRIGger:OBWidth[:SEQUence]:SOURce __________________________________________ 2-558

:TRIGger:OBWidth[:SEQUence]:SOURce? ............................................................ 2-558

[:SENSe]:OBWidth:AVERage:COUNt <integer> ..................................................... 2-559
[:SENSe]:OBWidth:AVERage:COUNt? .................................................................... 2-559

[:SENSe]:OBWidth:AVERage[:STATe] ON|OFF|1|0 ...................................................... 2-560
[:SENSe]:OBWidth:AVERage[:STATe]? .................................................................... 2-560

[:SENSe]:OBWidth:BANDwidth[:RESolution] <freq> ......................................... 2-561
[:SENSe]:OBWidth:BANDwidth[:RESolution]? ....................................................... 2-561

:CALCulate:OBWidth:BANDwidth[:RESolution] <freq> ........................................ 2-562
:CALCulate:OBWidth:BANDwidth[:RESolution]? .................................................... 2-562

[:SENSe]:OBWidth:BANDwidth[:RESolution]:AUTO ON|OFF|1|0 ......................... 2-563
[:SENSe]:OBWidth:BANDwidth[:RESolution]:AUTO? ............................................ 2-563

:CALCulate:OBWidth:BANDwidth[:RESolution]:AUTO ON|OFF|1|0 ......................... 2-564

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:CALCulate:OBWidth:BANDwidth[:RESolution]:AUTO? ....................................................... 2-564
[:SENSe]:OBWidth:BANDwidth[:RESolution]:MODE NORMal|CISPr ................................... 2-565
[:SENSe]:OBWidth:BANDwidth[:RESolution]:MODE? .......................................................... 2-565
:CALCulate:OBWidth:BANDwidth[:RESolution]:MODE NORMal|CISPr ............................... 2-566
[:SENSe]:OBWidth:BANDwidth[:RESolution]:MODE? ....................................................... 2-566
:CALCulate:OBWidth:BANDwidth:VIDeo <freq> ................................................................. 2-567
[:SENSe]:OBWidth:BANDwidth:VIDeo? ................................................................................ 2-567
[:SENSe]:OBWidth:BANDwidth:VIDeo:AUTO OFF|ON|0|1 ................................................... 2-568
[:SENSe]:OBWidth:BANDwidth:VIDeo:AUTO? ..................................................................... 2-568
[:SENSe]:OBWidth:DETector[:FUNCtion]
NORMal|POSitive|SAMPLE|NEGative|RMS|QPEak|CAVerage|CRMS ................................. 2-569
[:SENSe]:OBWidth:DETector[:FUNCtion]? ............................................................................ 2-569
:CALCulate:OBWidth:DETector[:FUNCtion]
NORMal|POSitive|SAMPLE|NEGative|RMS|QPEak|CAVerage|CRMS ................................. 2-570
[:SENSe]:OBWidth:DETector[:FUNCtion]? ............................................................................ 2-570
[:SENSe]:OBWidth:FREQuency:SPAN <freq> ................................................................. 2-571
[:SENSe]:OBWidth:FREQuency:SPAN? ............................................................................... 2-571
[:SENSe]:OBWidth:FREQuency:SPAN:FULL ....................................................................... 2-571
[:SENSe]:OBWidth:SWEep:POINts <integer> ................................................................. 2-572
[:SENSe]:OBWidth:SWEep:POINts? ..................................................................................... 2-572
[:SENSe]:OBWidth:SWEep:TIME <time> .............................................................................. 2-573
[:SENSe]:OBWidth:SWEep:TIME? ........................................................................................ 2-573
[:SENSe]:OBWidth:SWEep:TIME:AUTO OFF|ON|0|1 .......................................................... 2-574
[:SENSe]:OBWidth:SWEep:TIME:AUTO? ............................................................................. 2-574
:CALCulate:OBWidth:MARKer[1]|2|3|4|5|6|7|8|9|10:REFerence <integer> ......................... 2-575
Spectrum Emission Mask ....................................................................................................... 2-576
[:SENSe]:SEMask[:STATe] ON|OFF|1|0 ............................................................................... 2-583
[:SENSe]:SEMask[:STATe]? ................................................................................................. 2-583
[:SENSe]:SEMask:OFFSet[1]:SIDE BOTH|POSitive|NEGative ............................................. 2-584
[:SENSe]:SEMask:OFFSet[1]:SIDE? ..................................................................................... 2-585
[:SENSe]:SEMask:TYPE TPRef|PKRef|FIX .......................................................................... 2-586
[:SENSe]:SEMask:TYPE? ..................................................................................................... 2-587
:CALCulate:SEMask:TYPE TPRef|PKRef|FIX ...................................................................... 2-588
:CALCulate:SEMask:TYPE? .................................................................................................. 2-589
[:SENSe]:SEMask:CARRier[:POWer] <amp> ........................................................................ 2-590
[:SENSe]:SEMask:CARRier[:POWer]? ................................................................................. 2-591
:CALCulate:SEMask:CARRier[:POWer] <amp> ........................................................................ 2-592
:CALCulate:SEMask:CARRier[:POWer]? ................................................................................. 2-593
[:SENSe]:SEMask:BANDwidth[1]:CHANnel|INTegration <bandwidth> ............................... 2-594
[:SENSe]:SEMask:BANDwidth[1]:CHANnel|INTegration? .................................................... 2-595
[:SENSe]:SEMask:ATTenuation <rel_ampl>|AUTO ............................................................. 2-596
[:SENSe]:SEMask:ATTenuation? .......................................................................................... 2-597
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[:SENSe]:SEMask:OFFSet[1]:LIST:ATTenuation <rel_ampl_1>|AUTO [, <rel_ampl_2>|AUTO ...
[:SENSe]:SEMask:OFFSet[1]:LIST:ATTenuation? .......................................................... 2-598
[:SENSe]:SEMask:BANDwidth[1]:RESolution <bandwidth> ........................................ 2-600
[:SENSe]:SEMask:BANDwidth[1]:RESolution? .......................................................... 2-601
[:SENSe]:SEMask:BANDwidth[1]:RESolution:AUTO ON|OFF|1|0 .................................. 2-602
[:SENSe]:SEMask:BANDwidth[1]:RESolution:AUTO? ............................................... 2-603
[:SENSe]:SEMask:OFFSet[1]:LIST:BANDwidth[1]:RESolution
<bandwidth_1>, <bandwidth_2>, <bandwidth_3>, <bandwidth_4>, <bandwidth_5>, ...
[:SENSe]:SEMask:OFFSet[1]:LIST:BANDwidth[1]:RESolution? .................................... 2-605
[:SENSe]:SEMask:OFFSet[1]:LIST:BANDwidth[1]:RESolution:AUTO
<switch_1>, <switch_2>, <switch_3>, <switch_4>, <switch_5>, ...
[:SENSe]:SEMask:OFFSet[1]:LIST:BANDwidth[1]:RESolution:AUTO? .......................... 2-606
[:SENSe]:SEMask:BANDwidth[1]:VIDeo <bandwidth>|OFF ........................................... 2-608
[:SENSe]:SEMask:BANDwidth[1]:VIDeo? ..................................................................... 2-609
[:SENSe]:SEMask:OFFSet[1]:LIST:BANDwidth[1]:VIDeo <bandwidth_1>|OFF
<bandwidth_2>, <bandwidth_3>, <bandwidth_4>, <bandwidth_5>, ...
[:SENSe]:SEMask:BANDwidth[1]:VIDeo:AUTO ON|OFF|1|0 ........................................ 2-612
[:SENSe]:SEMask:BANDwidth[1]:VIDeo:AUTO? .......................................................... 2-613
[:SENSe]:SEMask:BANDwidth[1]:VIDeo:MODE VIDeo|POWer .................................... 2-616
[:SENSe]:SEMask:BANDwidth[1]:VIDeo:MODE? .......................................................... 2-617
[:SENSe]:SEMask:OFFSet[1]:LIST:BANDwidth[1]:VIDeo:MODE
<method_1>, <method_2>, <method_3>, <method_4>, <method_5>, ...
[:SENSe]:SEMask:OFFSet[1]:LIST:BANDwidth[1]:VIDeo:MODE? .................................... 2-619
[:SENSe]:SEMask:SWEep[1]:TIME <time> ................................................................. 2-620
[:SENSe]:SEMask:SWEep[1]:TIME? ............................................................................ 2-621
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[:SENSe]:SEMask:OFFSet[1]:LIST:SWEep[1]:TIME
    <time_1>,<time_2>,<time_3>,<time_4>,<time_5>,<time_6>,<time_7>,<time_8>
    [<time_9>,<time_10>,<time_11>,<time_12>]]]]]]]]]]]]]]]]]]]]]]]]]]]]] 2-622
[:SENSe]:SEMask:OFFSet[1]:LIST:SWEep[1]:TIME?
[:SENSe]:SEMask:SWEep[1]:TIME:AUTO ON|OFF|1|0 2-624
[:SENSe]:SEMask:SWEep[1]:TIME:AUTO? 2-625
[:SENSe]:SEMask:OFFSet[1]:LIST:SWEep[1]:TIME:AUTO
    <switch_1>,<switch_2>,<switch_3>,<switch_4>,<switch_5>,<switch_6>
    [<switch_7>,<switch_8>,<switch_9>,<switch_10>,<switch_11>
    [<switch_12>]]])]]]]]]]]]]]]]]]]]]]]]]]]]]] 2-626
[:SENSe]:SEMask:OFFSet[1]:LIST:SWEep[1]:TIME:AUTO?
[:SENSe]:SEMask:SWEep[1]:TIME:AUTO:MODE NORMal|FAST 2-628
[:SENSe]:SEMask:SWEep[1]:TIME:AUTO:MODE? 2-629
[:SENSe]:SEMask:OFFSet[1]:LIST:SWEep[1]:TIME:AUTO:MODE
    <mode_1>,<mode_2>,<mode_3>,<mode_4>,<mode_5>,<mode_6>,<mode_7>
    [<mode_8>,<mode_9>,<mode_10>,<mode_11>,<mode_12>]]]]]]]]]]]]]]]]]]] 2-630
[:SENSe]:SEMask:SWEep[1]:TIME:AUTO:MODE? 2-631
[:SENSe]:SEMask:DETector[:FUNCtion] NORMal|POSitive|NEGative|SAMPle|RMS|AVERage 2-632
[:SENSe]:SEMask:DETector[:FUNCtion]? 2-633
[:CALCulate]:SEMask:DETector[:FUNCtion] NORMal|POSitive|NEGative|SAMPle|RMS|AVERage 2-634
[:CALCulate]:SEMask:DETector[:FUNCtion]?
[:SENSe]:SEMask:OFFSet[1]:LIST:DETector
    <mode_1>,<mode_2>,<mode_3>,<mode_4>,<mode_5>,<mode_6>,<mode_7>
    [<mode_8>,<mode_9>,<mode_10>,<mode_11>,<mode_12>]]]]]]]]]]]]]]]]]]] 2-635
[:SENSe]:SEMask:OFFSet[1]:LIST:DETector?
[:SENSe]:SEMask:DETector:OFFSet[:FUNCtion]
    NORMal|POSitive|NEGative|SAMPle|RMS|AVERage 2-636
[:SENSe]:SEMask:SWEep[1]:POINts <integer> 2-637
[:SENSe]:SEMask:SWEep[1]:POINts? 2-638
[:SENSe]:SEMask:OFFSet[1]:LIST:FREQuency:STARt
    <freq_1>,<freq_2>,<freq_3>,<freq_4>,<freq_5>,<freq_6>,<freq_7>,<freq_8>
    [<freq_9>,<freq_10>,<freq_11>,<freq_12>]]]]]]]]]]]]]]]]]]]]]]]]]]]]] 2-639
[:SENSe]:SEMask:OFFSet[1]:LIST:FREQuency:STARt?
[:SENSe]:SEMask:FILTer:TYPE RECT|NYQuist|RNYQuist 2-640
[:SENSe]:SEMask:FILTer:TYPE? 2-641
[:SENSe]:SEMask:FILTer[:RRC]:ALPHa <real> 2-642
[:SENSe]:SEMask:FILTer[:RRC]:ALPHa? 2-643
[:SENSe]:SEMask:OFFSet[1]:LIST:FREQuency:POINts
    <integer_1>,<integer_2>,<integer_3>,<integer_4>,<integer_5>,<integer_6>
    [<integer_7>,<integer_8>,<integer_9>,<integer_10>,<integer_11>
    [<integer_12>]]]]]]]]]]]]]]]]]]] 2-644
[:SENSe]:SEMask:OFFSet[1]:LIST:FREQuency:POINts?
[:SENSe]:SEMask:FILTer:TYPE RECT|NYQuist|RNYQuist 2-645
[:SENSe]:SEMask:FILTer[:RRC]:ALPHa <real> 2-646
[:SENSe]:SEMask:FILTer[:RRC]:ALPHa? 2-647
[:SENSe]:SEMask:OFFSet[1]:LIST:FREQuency:STARt 2-648
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[:SENSe]:SEMask:OFFSet[1]:LIST:FREQuency:STOP
<freq_1>,<freq_2>,<freq_3>,<freq_4>,<freq_5>,<freq_6>,<freq_7>,<freq_8>,
<freq_9>,<freq_10>,<freq_11>,<freq_12> ................................................ 2-649

[:SENSe]:SEMask:OFFSet[1]:LIST:FREQuency:STOP? ...................................................... 2-650

[:SENSe]:SEMask:OFFSet[1]:LIST:BANDwidth[1]:INTegration
<bandwidth_1>,<bandwidth_2>,<bandwidth_3>,<bandwidth_4>,<bandwidth_5>,
<bandwidth_6>,<bandwidth_7>,<bandwidth_8>,<bandwidth_9>,<bandwidth_10>,
<bandwidth_11>,<bandwidth_12> ........................................................................ 2-651

[:SENSe]:SEMask:OFFSet[1]:LIST:BANDwidth[1]:INTegration? ........................................... 2-652

[:SENSe]:SEMask:OFFSet[1]:LIST:BANDwidth[1]:INTegration:AUTO
<switch_1>,<switch_2>,<switch_3>,<switch_4>,<switch_5>,<switch_6>,<switch_7>,
<switch_8>,<switch_9>,<switch_10>,<switch_11>,<switch_12> ........................................ 2-653

[:SENSe]:SEMask:OFFSet[1]:LIST:BANDwidth[1]:INTegration:AUTO? .................................. 2-654

[:SENSe]:SEMask:OFFSet[1]:LIST:RLEVel
<ampl_1>,<ampl_2>,<ampl_3>,<ampl_4>,<ampl_5>,<ampl_6>,<ampl_7>,
<ampl_8>,<ampl_9>,<ampl_10>,<ampl_11>,<ampl_12> ............................................. 2-655

[:SENSe]:SEMask:OFFSet[1]:LIST:RLEVel? ................................................................. 2-656

[:SENSe]:SEMask:OFFSet[1]:LIST:RLEVel:AUTO
<switch_1>,<switch_2>,<switch_3>,<switch_4>,<switch_5>,<switch_6>,<switch_7>,
<switch_8>,<switch_9>,<switch_10>,<switch_11>,<switch_12> ........................................ 2-657

[:SENSe]:SEMask:OFFSet[1]:LIST:RLEVel:AUTO? ......................................................... 2-658

[:SENSe]:SEMask:OFFSet[1]:LIST:STATe
<switch_1>,<switch_2>,<switch_3>,<switch_4>,<switch_5>,<switch_6>,<switch_7>,
<switch_8>,<switch_9>,<switch_10>,<switch_11>,<switch_12> ........................................ 2-659

[:SENSe]:SEMask:OFFSet[1]:LIST:STATe? ................................................................. 2-660

[:SENSe]:SEMask:OFFSet[1]:LIST:START:ABSolute[1]|2
<ampl_1>,<ampl_2>,<ampl_3>,<ampl_4>,<ampl_5>,<ampl_6>,<ampl_7>,
<ampl_8>,<ampl_9>,<ampl_10>,<ampl_11>,<ampl_12> .............................................. 2-661


<ampl_1>,<ampl_2>,<ampl_3>,<ampl_4>,<ampl_5>,<ampl_6>,<ampl_7>,
<ampl_8>,<ampl_9>,<ampl_10>,<ampl_11>,<ampl_12> ............................................. 2-663


[:SENSe]:SEMask:OFFSet[1]:LIST:STOP:ABSolute[1]|2
<ampl_1>,<ampl_2>,<ampl_3>,<ampl_4>,<ampl_5>,<ampl_6>,<ampl_7>,<ampl_8>,
<ampl_9>,<ampl_10>,<ampl_11>,<ampl_12> ...................................................... 2-665


<ampl_1>,<ampl_2>,<ampl_3>,<ampl_4>,<ampl_5>,<ampl_6>,<ampl_7>,
<ampl_8>,<ampl_9>,<ampl_10>,<ampl_11>,<ampl_12> ............................................. 2-667


[:SENSe]:SEMask:OFFSet[1]:LIST:START:RCARrier
<ampl_1>,<ampl_2>,<ampl_3>,<ampl_4>,<ampl_5>,<ampl_6>,<ampl_7>,
<ampl_8>,<ampl_9>,<ampl_10>,<ampl_11>,<ampl_12> ............................................. 2-669

[:SENSe]:SEMask:OFFSet[1]:LIST:START:RCARrier? ................................................... 2-670
:CALCulate:SEMask:OFFSet[1]:LIST:STARt:RCARrier
    <ampl_1>,<ampl_2>,<ampl_3>,<ampl_4>,<ampl_5>,<ampl_6>,<ampl_7>
    ,<ampl_8>,<ampl_9>,<ampl_10>,<ampl_11>,<ampl_12>]

"CALCulate:SEMask:OFFSet[1]:LIST:STARt:RCARrier"

[:SENSe]:SEMask:OFFSet[1]:LIST:STOP:RCARrier
    <ampl_1>,<ampl_2>,<ampl_3>,<ampl_4>,<ampl_5>,<ampl_6>,<ampl_7>
    ,<ampl_8>,<ampl_9>,<ampl_10>,<ampl_11>,<ampl_12>]

"[SENSe]:SEMask:OFFSet[1]:LIST:STOP:RCARrier"

[:SENSe]:SEMask:LOGic:OFFSet[1]:LIST:TEST
    <logic_1>,<logic_2>,<logic_3>,<logic_4>,<logic_5>,<logic_6>,<logic_7>
    ,<logic_8>,<logic_9>,<logic_10>,<logic_11>,<logic_12>]

"[SENSe]:SEMask:LOGic:OFFSet[1]:LIST:TEST"

"[SENSe]:SEMask:LOGic:OFFSet[1]:LIST:TEST"
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2.14 Spurious Emission Measurement Function

[:SENSe]:SPURious[:STATe] ON|OFF|1|0 ............................................................................ 2-720
[:SENSe]:SPURious[:STATe]?
.................................................................................................. 2-721
[:SENSe]:SPURious:TYPE WORS|EXAMine|PEAKs|FULL ................................................. 2-722
[:SENSe]:SPURious:TYPE? .................................................................................................. 2-723
:DISPlay:SPURious:SEGMenT:MODE ON|OFF|1|0 .............................................................. 2-723
:DISPlay:SPURious:SEGMenT:MODE?
.................................................................................................. 2-724
:DISPlay:SPURious:SEGMenT <integer> .............................................................................. 2-724
:DISPlay:SPURious:SEGMenT? ............................................................................................. 2-725
:DISPlay:SPURious:SEGMenT:AUTO ON|OFF|1|0 ............................................................... 2-725
:DISPlay:SPURious:STAble RESult|RANGe ........................................................................ 2-726
:DISPlay:SPURious:STAble?
.................................................................................................. 2-727
:DISPlay:SPURious:SEGMenT:NEXT .................................................................................... 2-727
:DISPlay:SPURious:SEGMenT:PREVious ............................................................................. 2-728
[:SENSe]:SPURious:TDOMain:SPAN:ZERO ON|OFF|1|0 .................................................... 2-730
[:SENSe]:SPURious:TDOMain:SPAN:ZERO? ...................................................................... 2-730
[:SENSe]:SPURious:FSTop ON|OFF|1|0 .............................................................................. 2-730
[:SENSe]:SPURious:FSTop? ................................................................................................. 2-731
[:SENSe]:SPURious:SEGMenT:NUMBer <integer> ............................................................... 2-731
[:SENSe]:SPURious:SEGMenT:NUMBer? ............................................................................. 2-732
[:SENSe]:SPURious[:RANGe][:LIST]:SEGMenT:STATe
ON|OFF|1|0,ON|OFF|1|0,ON|OFF|1|0,ON|OFF|1|0,ON|OFF|1|0,ON|OFF|1|0,
ON|OFF|1|0,ON|OFF|1|0,ON|OFF|1|0,ON|OFF|1|0,ON|OFF|1|0,ON|OFF|1|0,
ON|OFF|1|0,ON|OFF|1|0,ON|OFF|1|0,ON|OFF|1|0,ON|OFF|1|0,ON|OFF|1|0,ON|OFF|1|0,
ON|OFF|1|0,ON|OFF|1|0,ON|OFF|1|0,ON|OFF|1|0,ON|OFF|1|0,ON|OFF|1|0,ON|OFF|1|0,ON|OFF|1|0,ON|OFF|1|0,ON|OFF|1|0
.................................................................................................. 2-733
[:SENSe]:SPURious[:RANGe][:LIST]:SEGMenT:STATe?
.................................................................................................. 2-734
[:SENSe]:SPURious[:RANGe][:LIST]:FREQuency:STARt
<freq_1>,<freq_2>,<freq_3>,<freq_4>,<freq_5>,<freq_6>,<freq_7>,<freq_8>,<freq_9>,
<freq_10>,<freq_11>,<freq_12>,<freq_13>,<freq_14>,<freq_15>,<freq_16>,<freq_17>,
<freq_18>,<freq_19>,<freq_20> ................................................................................ 2-735
[:SENSe]:SPURious[:RANGe][:LIST]:FREQuency:STARt?
.................................................................................................. 2-736
[:SENSe]:SPURious[:RANGe][:LIST]:FREQuency:STOP
<freq_1>,<freq_2>,<freq_3>,<freq_4>,<freq_5>,<freq_6>,<freq_7>,<freq_8>,<freq_9>,
<freq_10>,<freq_11>,<freq_12>,<freq_13>,<freq_14>,<freq_15>,<freq_16>,<freq_17>,
<freq_18>,<freq_19>,<freq_20> ................................................................................ 2-737
[:SENSe]:SPURious[:RANGe][:LIST]:FREQuency:STOP?
.................................................................................................. 2-738
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:DISPlay:SPURious:VIEW[1]:WINDow[1]:TRACe[Y][SCALE]:RLEVel
<real_1>,<real_2>,<real_3>,<real_4>,<real_5>,<real_6>,<real_7>,<real_8>,<real_9>,
<real_10>,<real_11>,<real_12>,<real_13>,<real_14>,<real_15>,<real_16>,<real_17>,
<real_18>,<real_19>,<real_20>  ................................................................. 2-744

:DISPlay:SPURious:VIEW[1]:WINDow[1]:TRACe[Y][SCALE]:RLEVel?  .............. 2-745

[:SENSe]:SPURious:ATTenuation
<rel_ampl_1>|AUTO,<rel_ampl_2>|AUTO,<rel_ampl_3>|AUTO,<rel_ampl_4>|AUTO,
<rel_ampl_5>|AUTO,<rel_ampl_6>|AUTO,<rel_ampl_7>|AUTO,<rel_ampl_8>|AUTO,
<rel_ampl_9>|AUTO,<rel_ampl_10>|AUTO,<rel_ampl_11>|AUTO,
<rel_ampl_12>|AUTO,<rel_ampl_13>|AUTO,<rel_ampl_14>|AUTO,
<rel_ampl_15>|AUTO,<rel_ampl_16>|AUTO,<rel_ampl_17>|AUTO,
<rel_ampl_18>|AUTO,<rel_ampl_19>|AUTO,<rel_ampl_20>|AUTO  ............................ 2-746

[:SENSe]:SPURious:ATTenuation? ............................................................... 2-747

[:SENSe]:SPURious[:RANGe][:LIST]:BANDwidth[:RESolution]:AUTO
ON|OFF|1|0,ON|OFF|1|0,ON|OFF|1|0,ON|OFF|1|0,ON|OFF|1|0,
ON|OFF|1|0,ON|OFF|1|0,ON|OFF|1|0,ON|OFF|1|0,ON|OFF|1|0,
ON|OFF|1|0,ON|OFF|1|0,ON|OFF|1|0,ON|OFF|1|0,ON|OFF|1|0,
ON|OFF|1|0,ON|OFF|1|0,ON|OFF|1|0,ON|OFF|1|0,ON|OFF|1|0,ON|OFF|1|0  2-748

[:SENSe]:SPURious[:RANGe][:LIST]:BANDwidth[:RESolution]?  ....................... 2-749

[:SENSe]:SPURious[:RANGe][:LIST]:BANDwidth[:RESolution]
<bandwidth_1>,<bandwidth_2>,<bandwidth_3>,<bandwidth_4>,<bandwidth_5>,
<bandwidth_6>,<bandwidth_7>,<bandwidth_8>,<bandwidth_9>,<bandwidth_10>,
<bandwidth_11>,<bandwidth_12>,<bandwidth_13>,<bandwidth_14>,<bandwidth_15>,
<bandwidth_16>,<bandwidth_17>,<bandwidth_18>,<bandwidth_19>,
<bandwidth_20>  ..................................................................................... 2-750

[:SENSe]:SPURious[:RANGe][:LIST]:BANDwidth[:RESolution]?  ....................... 2-751

[:SENSe]:SPURious[:RANGe][:LIST]:BANDwidth:VIDeo:AUTO
ON|OFF|1|0,ON|OFF|1|0,ON|OFF|1|0,ON|OFF|1|0,ON|OFF|1|0,ON|OFF|1|0,
ON|OFF|1|0,ON|OFF|1|0,ON|OFF|1|0,ON|OFF|1|0,ON|OFF|1|0,
ON|OFF|1|0,ON|OFF|1|0,ON|OFF|1|0,ON|OFF|1|0,ON|OFF|1|0,ON|OFF|1|0,ON|OFF|1|0,ON|OFF|1|0,ON|OFF|1|0,ON|OFF|1|0  2-752

[:SENSe]:SPURious[:RANGe][:LIST]:BANDwidth:VIDeo? ................................... 2-753

[:SENSe]:SPURious[:RANGe][:LIST]:BANDwidth:VIDeo
<bandwidth_1>|OFF,<bandwidth_2>|OFF,<bandwidth_3>|OFF,<bandwidth_4>|OFF,
<bandwidth_5>|OFF,<bandwidth_6>|OFF,<bandwidth_7>|OFF,<bandwidth_8>|OFF,
<bandwidth_9>|OFF,<bandwidth_10>|OFF,<bandwidth_11>|OFF,
<bandwidth_12>|OFF,<bandwidth_13>|OFF,<bandwidth_14>|OFF,
<bandwidth_15>|OFF,<bandwidth_16>|OFF,<bandwidth_17>|OFF,
<bandwidth_18>|OFF,<bandwidth_19>|OFF,<bandwidth_20>|OFF  ............................ 2-754

[:SENSe]:SPURious[:RANGe][:LIST]:BANDwidth:VIDeo? ................................... 2-755

[:SENSe]:SPURious[:RANGe][:LIST]:SWEep:TIME:AUTO
ON|OFF|1|0,ON|OFF|1|0,ON|OFF|1|0,ON|OFF|1|0,ON|OFF|1|0,ON|OFF|1|0,
ON|OFF|1|0,ON|OFF|1|0,ON|OFF|1|0,ON|OFF|1|0,ON|OFF|1|0,
ON|OFF|1|0,ON|OFF|1|0,ON|OFF|1|0,ON|OFF|1|0,ON|OFF|1|0,ON|OFF|1|0,ON|OFF|1|0,ON|OFF|1|0,ON|OFF|1|0,ON|OFF|1|0,ON|OFF|1|0  2-756

[:SENSe]:SPURious[:RANGe][:LIST]:SWEep:TIME? ........................................... 2-757
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[:SENSe]:SPURious[:RANGE][:LIST]:SWEep:TIME:AUTO? ................................................ 2-758
[:SENSe]:SPURious[:RANGE][:LIST]:SWEep:TIME
 <seconds_1>,<seconds_2>,<seconds_3>,<seconds_4>,<seconds_5>,<seconds_6>,
 <seconds_7>,<seconds_8>,<seconds_9>,<seconds_10>,<seconds_11>,
 <seconds_12>,<seconds_13>,<seconds_14>,<seconds_15>,<seconds_16>,
 <seconds_17>,<seconds_18>,<seconds_19>,<seconds_20> ........................................... 2-759
[:SENSe]:SPURious[:RANGE][:LIST]:SWEep:TIME?

[:SENSe]:SPURious[:RANGE][:LIST]:SWEep:PAUSe
 ON|OFF|1|0,ON|OFF|1|0,ON|OFF|1|0,ON|OFF|1|0,ON|OFF|1|0,
 ON|OFF|1|0,ON|OFF|1|0,ON|OFF|1|0,ON|OFF|1|0,ON|OFF|1|0,
 ON|OFF|1|0,ON|OFF|1|0,ON|OFF|1|0,ON|OFF|1|0,ON|OFF|1|0,
 ON|OFF|1|0,ON|OFF|1|0,ON|OFF|1|0,ON|OFF|1|0,ON|OFF|1|0 .............................. 2-761
[:SENSe]:SPURious[:RANGE][:LIST]:SWEep:PAUSe?

[:SENSe]:SPURious:POWer[:RF]:GAIN[:STATe]
 ON|OFF|1|0,ON|OFF|1|0,ON|OFF|1|0,ON|OFF|1|0,ON|OFF|1|0,
 ON|OFF|1|0,ON|OFF|1|0,ON|OFF|1|0,ON|OFF|1|0,ON|OFF|1|0,
 ON|OFF|1|0,ON|OFF|1|0,ON|OFF|1|0,ON|OFF|1|0,ON|OFF|1|0,
 ON|OFF|1|0,ON|OFF|1|0,ON|OFF|1|0,ON|OFF|1|0,ON|OFF|1|0,ON|OFF|1|0 .............................. 2-763
[:SENSe]:SPURious:POWer[:RF]:GAIN[:STATe]?

[:SENSe]:SPURious[:RANGE][:LIST]:DETector[1]:FUNCtion
 NORMal|POSitive|SAMPle|NEGative|RMS,NORMal|POSitive|SAMPle|NEGative|RMS,
 NORMal|POSitive|SAMPle|NEGative|RMS,NORMal|POSitive|SAMPle|NEGative|RMS,
 NORMal|POSitive|SAMPle|NEGative|RMS,NORMal|POSitive|SAMPle|NEGative|RMS,
 NORMal|POSitive|SAMPle|NEGative|RMS,NORMal|POSitive|SAMPle|NEGative|RMS,
 NORMal|POSitive|SAMPle|NEGative|RMS,NORMal|POSitive|SAMPle|NEGative|RMS,
 NORMal|POSitive|SAMPle|NEGative|RMS,NORMal|POSitive|SAMPle|NEGative|RMS,
 NORMal|POSitive|SAMPle|NEGative|RMS,NORMal|POSitive|SAMPle|NEGative|RMS,
 NORMal|POSitive|SAMPle|NEGative|RMS,NORMal|POSitive|SAMPle|NEGative|RMS,
 NORMal|POSitive|SAMPle|NEGative|RMS,NORMal|POSitive|SAMPle|NEGative|RMS,
 NORMal|POSitive|SAMPle|NEGative|RMS,NORMal|POSitive|SAMPle|NEGative|RMS, 2-765
[:SENSe]:SPURious[:RANGE][:LIST]:DETector[1]:FUNCtion?

[:SENSe]:SPURious[:RANGE][:LIST]:SWEep:POINts
 <integer_1>,<integer_2>,<integer_3>,<integer_4>,<integer_5>,<integer_6>,
 <integer_7>,<integer_8>,<integer_9>,<integer_10>,<integer_11>,<integer_12>,
 <integer_13>,<integer_14>,<integer_15>,<integer_16>,<integer_17>,<integer_18>,
 <integer_19>,<integer_20> ........................................... 2-767
[:SENSe]:SPURious[:RANGE][:LIST]:SWEep:POINts?

[:SENSe]:SPURious:AVerage:COUNT:COUPle ON|OFF|1|0  ........................................... 2-769
[:SENSe]:SPURious:AVerage:COUNT:COUPle?  ........................................... 2-770

[:SENSe]:SPURious[:RANGE][:LIST]:AVerage:COUNT
 <integer_1>,<integer_2>,<integer_3>,<integer_4>,<integer_5>,<integer_6>,
 <integer_7>,<integer_8>,<integer_9>,<integer_10>,<integer_11>,<integer_12>,
 <integer_13>,<integer_14>,<integer_15>,<integer_16>,<integer_17>,<integer_18>,
 <integer_19>,<integer_20> ........................................... 2-771
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[:SENSe]:SPURIous[:RANGE][:LIST]:AVERage:COUNT? ........................................................................ 2-772

:CALCulate:SPURIous[:RANGE][:LIST]:CORRection:COMMOn <segment> ....................................... 2-772

:CALCulate:SPURIous[:RANGE][:LIST]:CORRection:RECall <segment>,<filename> [<device>] .................................................................................................................. 2-773

:CALCulate:SPURIous[:RANGE][:LIST]:LIMit:ABSolute[:UPPer]:DATA[:START]<ampl_1>,<ampl_2>,<ampl_3>,<ampl_4>,<ampl_5>,<ampl_6>,<ampl_7>,<ampl_8>,<ampl_9>,<ampl_10>,<ampl_11>,<ampl_12>,<ampl_13>,<ampl_14>,<ampl_15>,<ampl_16>,<ampl_17>,<ampl_18>,<ampl_19>,<ampl_20> .................................................................. 2-774

:CALCulate:SPURIous[:RANGE][:LIST]:LIMit:ABSolute[:UPPer]:DATA:STOP:AUTO ON|OFF|1|0,ON|OFF|1|0,ON|OFF|1|0,ON|OFF|1|0,ON|OFF|1|0,ON|OFF|1|0,ON|OFF|1|0,ON|OFF|1|0,ON|OFF|1|0,ON|OFF|1|0 ................................................................. 2-775

:CALCulate:SPURIous[:RANGE][:LIST]:LIMit:ABSolute[:UPPer]:DATA:STOP:AUTO? ......................... 2-775

[:SENSe]:SPURIous[:RANGE][:LIST]:PEAK:RESolution|:EXCursion<rel_ampl_1>,<rel_ampl_2>,<rel_ampl_3>,<rel_ampl_4>,<rel_ampl_5>,<rel_ampl_6>,<rel_ampl_7>,<rel_ampl_8>,<rel_ampl_9>,<rel_ampl_10>,<rel_ampl_11>,<rel_ampl_12>,<rel_ampl_13>,<rel_ampl_14>,<rel_ampl_15>,<rel_ampl_16>,<rel_ampl_17>,<rel_ampl_18>,<rel_ampl_19>,<rel_ampl_20> ........................................ 2-780

[:SENSe]:SPURIous[:RANGE][:LIST]:PEAK:RESolution|:EXCursion? .................................................. 2-781

[:SENSe]:SPURIous[:RANGE][:LIST]:PEAK:THReshold<real_1>,<real_2>,<real_3>,<real_4>,<real_5>,<real_6>,<real_7>,<real_8>,<real_9>,<real_10>,<real_11>,<real_12>,<real_13>,<real_14>,<real_15>,<real_16>,<real_17>,<real_18>,<real_19>,<real_20> ........................................................................ 2-782

[:SENSe]:SPURIous[:RANGE][:LIST]:PEAK:THReshold? ..................................................................... 2-783

[:SENSe]:SPURIous:TDOMain[:RANGE][:LIST]:BANDwidth[:RESolution]:COUPle ON|OFF|1|0,ON|OFF|1|0,ON|OFF|1|0,ON|OFF|1|0,ON|OFF|1|0,ON|OFF|1|0,ON|OFF|1|0,ON|OFF|1|0,ON|OFF|1|0,ON|OFF|1|0,ON|OFF|1|0,ON|OFF|1|0,ON|OFF|1|0,ON|OFF|1|0,ON|OFF|1|0,ON|OFF|1|0,ON|OFF|1|0,ON|OFF|1|0,ON|OFF|1|0,ON|OFF|1|0,ON|OFF|1|0,ON|OFF|1|0,ON|OFF|1|0 ........................................ 2-784

[:SENSe]:SPURIous:TDOMain[:RANGE][:LIST]:BANDwidth[:RESolution]:COUPle? ....................... 2-785

[:SENSe]:SPURIous:TDOMain[:RANGE][:LIST]:BANDwidth[:RESolution] <bandwidth_1>,<bandwidth_2>,<bandwidth_3>,<bandwidth_4>,<bandwidth_5>,<bandwidth_6>,<bandwidth_7>,<bandwidth_8>,<bandwidth_9>,<bandwidth_10>,<bandwidth_11>,<bandwidth_12>,<bandwidth_13>,<bandwidth_14>,<bandwidth_15>,<bandwidth_16>,<bandwidth_17>,<bandwidth_18>,<bandwidth_19>,<bandwidth_20> .................................................................................. 2-786

[:SENSe]:SPURIous:TDOMain[:RANGE][:LIST]:BANDwidth[:RESolution]? .................................. 2-788
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[:SENSe]:SPURious:TDOMain[:RANGe][:LIST]:BANDwidth:VIDeo:COUPle
ON|OFF|1|0,ON|OFF|1|0,ON|OFF|1|0,ON|OFF|1|0,ON|OFF|1|0,
ON|OFF|1|0,ON|OFF|1|0,ON|OFF|1|0,ON|OFF|1|0,ON|OFF|1|0,
ON|OFF|1|0,ON|OFF|1|0,ON|OFF|1|0,ON|OFF|1|0,ON|OFF|1|0,
ON|OFF|1|0,ON|OFF|1|0,ON|OFF|1|0,ON|OFF|1|0,ON|OFF|1|0 .............................. 2-789
[:SENSe]:SPURious:TDOMain[:RANGe][:LIST]:BANDwidth:VIDeo:COUPle? ..................... 2-790
[:SENSe]:SPURious:TDOMain[:RANGe][:LIST]:BANDwidth:VIDeo
<bandwidth_1>|OFF,<bandwidth_2>|OFF,<bandwidth_3>|OFF,<bandwidth_4>|OFF,
<bandwidth_5>|OFF,<bandwidth_6>|OFF,<bandwidth_7>|OFF,<bandwidth_8>|OFF,
<bandwidth_9>|OFF,<bandwidth_10>|OFF,<bandwidth_11>|OFF,
<bandwidth_12>|OFF,<bandwidth_13>|OFF,<bandwidth_14>|OFF,
<bandwidth_15>|OFF,<bandwidth_16>|OFF,<bandwidth_17>|OFF,
<bandwidth_18>|OFF,<bandwidth_19>|OFF,<bandwidth_20>|OFF ........................ 2-791
[:SENSe]:SPURious:TDOMain[:RANGe][:LIST]:BANDwidth:VIDeo? ................................... 2-792
[:SENSe]:SPURious:TDOMain[:RANGe][:LIST]:SWEep:TIME
<seconds_1>,<seconds_2>,<seconds_3>,<seconds_4>,<seconds_5>,<seconds_6>,
<seconds_7>,<seconds_8>,<seconds_9>,<seconds_10>,<seconds_11>,
<seconds_12>,<seconds_13>,<seconds_14>,<seconds_15>,<seconds_16>,
<seconds_17>,<seconds_18>,<seconds_19>,<seconds_20> ................................. 2-793
[:SENSe]:SPURious:TDOMain[:RANGe][:LIST]:SWEep:TIME? ........................................... 2-794
[:SENSe]:SPURious:TDOMain[:RANGe][:LIST]:DETector[1][:FUNCtion]
POSitive|SAMPle|RMS,POSitive|SAMPle|RMS,POSitive|SAMPle|RMS,
POSitive|SAMPle|RMS,POSitive|SAMPle|RMS,POSitive|SAMPle|RMS,
POSitive|SAMPle|RMS,POSitive|SAMPle|RMS,POSitive|SAMPle|RMS,
POSitive|SAMPle|RMS,POSitive|SAMPle|RMS,POSitive|SAMPle|RMS,
POSitive|SAMPle|RMS,POSitive|SAMPle|RMS,POSitive|SAMPle|RMS,
POSitive|SAMPle|RMS,POSitive|SAMPle|RMS,POSitive|SAMPle|RMS,
POSitive|SAMPle|RMS,POSitive|SAMPle|RMS ........................................................ 2-795
[:SENSe]:SPURious:TDOMain[:RANGe][:LIST]:DETector[1][:FUNCtion]?........................... 2-796
:MMEMory:STORe:SPURious:TABLe <register> ................................................................. 2-797
:MMEMory:LOAD:SPURious:TABLe <register> .................................................................... 2-797
:CONFigure:SPURious .......................................................................................................... 2-798
:INITiate:SPURious ................................................................................................................ 2-798
:FETCh:SPURious[n]? ........................................................................................................... 2-799
:READ:SPURious[n]? ............................................................................................................ 2-802
:MEASure:SPURious[n]? ....................................................................................................... 2-802
:DISPlay:SPURious:ANNotation:TITLe:DATA <string>......................................................... 2-802
:DISPlay:SPURious:VIEW[1]:WINDow[1]:TRACe:Y[:SCALe]:PDIVision <rel_ampl> ........... 2-803
:DISPlay:SPURious:VIEW[1]:WINDow[1]:TRACe:Y[:SCALe]:PDIVision? ............................ 2-804
[:SENSe]:SPURious:AVERage[:STATe] ON|OFF|1|0 ........................................................... 2-805
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## 2.1 Frequency/Span

Table 2.1-1 lists device messages for frequency/span.

<table>
<thead>
<tr>
<th>Function</th>
<th>Device Messages</th>
</tr>
</thead>
<tbody>
<tr>
<td>Center Frequency</td>
<td>[:SENSe]:FREQuency:CENTer &lt;freq&gt;</td>
</tr>
<tr>
<td></td>
<td>[:SENSe]:FREQuency:CENTer?</td>
</tr>
<tr>
<td>Frequency Step Size</td>
<td>[:SENSe]:FREQuency:CENTer:STEP[:INCRement] &lt;freq&gt;</td>
</tr>
<tr>
<td></td>
<td>[:SENSe]:FREQuency:CENTer:STEP[:INCRement]?</td>
</tr>
<tr>
<td>Frequency Offset</td>
<td>[:SENSe]:FREQuency:OFFSet &lt;freq&gt;</td>
</tr>
<tr>
<td></td>
<td>[:SENSe]:FREQuency:OFFSet?</td>
</tr>
<tr>
<td>Frequency Offset Mode</td>
<td>[:SENSe]:FREQuency:OFFSet:STATe ON</td>
</tr>
<tr>
<td></td>
<td>[:SENSe]:FREQuency:OFFSet:STATe?</td>
</tr>
<tr>
<td>Frequency Span</td>
<td>[:SENSe]:FREQuency:SPAN &lt;freq&gt;</td>
</tr>
<tr>
<td></td>
<td>[:SENSe]:FREQuency:SPAN?</td>
</tr>
<tr>
<td>Full Span</td>
<td>[:SENSe]:FREQuency:SPAN:FULL</td>
</tr>
<tr>
<td>Start Frequency</td>
<td>[:SENSe]:FREQuency:START &lt;freq&gt;</td>
</tr>
<tr>
<td></td>
<td>[:SENSe]:FREQuency:START?</td>
</tr>
<tr>
<td>Stop Frequency</td>
<td>[:SENSe]:FREQuency:STOP &lt;freq&gt;</td>
</tr>
<tr>
<td></td>
<td>[:SENSe]:FREQuency:STOP?</td>
</tr>
<tr>
<td>Zero Span</td>
<td>[:SENSe]:FREQuency:SPAN:ZERO</td>
</tr>
<tr>
<td>Frequency Band Mode</td>
<td>[:SENSe]:FREQuency:BAND:MODE NORMAL</td>
</tr>
<tr>
<td></td>
<td>[:SENSe]:FREQuency:BAND:MODE?</td>
</tr>
<tr>
<td></td>
<td>[:SENSe]:FREQuency:BAND:MODE:STATe?</td>
</tr>
<tr>
<td>Couple Time/Freq, Domain</td>
<td>[:SENSe]:FREQuency:DOMain:COUPle ON</td>
</tr>
<tr>
<td></td>
<td>[:SENSe]:FREQuency:DOMain:COUPle?</td>
</tr>
<tr>
<td>Switching Speed</td>
<td>[:SENSe]:FREQuency:SYNThesis[:STATE] BPHase</td>
</tr>
<tr>
<td></td>
<td>[:SENSe]:FREQuency:SYNThesis[:STATE]?</td>
</tr>
</tbody>
</table>
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[:SENSe]:FREQuency:CENTer <freq>

Center Frequency

Function

This command sets the center frequency.

Command

[:SENSe]:FREQuency:CENTer <freq>

Parameter

<table>
<thead>
<tr>
<th>&lt;freq&gt;</th>
<th>Center frequency</th>
</tr>
</thead>
<tbody>
<tr>
<td>Range</td>
<td></td>
</tr>
<tr>
<td>[MS269xA]</td>
<td>–100 MHz to 6.05 GHz (MS2690A)</td>
</tr>
<tr>
<td></td>
<td>–100 MHz to 13.6 GHz (MS2691A)</td>
</tr>
<tr>
<td></td>
<td>–100 MHz to 26.6 GHz (MS2692A)</td>
</tr>
<tr>
<td>[MS2830A]</td>
<td>–100 MHz to 3.7 GHz (Option 040)</td>
</tr>
<tr>
<td></td>
<td>–100 MHz to 6.1 GHz (Option 041)</td>
</tr>
<tr>
<td></td>
<td>–100 MHz to 13.6 GHz (Option 043)</td>
</tr>
<tr>
<td></td>
<td>–100 MHz to 26.6 GHz (Option 044)</td>
</tr>
<tr>
<td></td>
<td>–100 MHz to 43.1 GHz (Option 045)</td>
</tr>
<tr>
<td>[MS2840A]</td>
<td>–100 MHz to 3.7 GHz (Option 040)</td>
</tr>
<tr>
<td></td>
<td>–100 MHz to 6.1 GHz (Option 041)</td>
</tr>
<tr>
<td></td>
<td>–100 MHz to 27 GHz (Option 044)</td>
</tr>
<tr>
<td></td>
<td>–100 MHz to 45 GHz (Option 046)</td>
</tr>
<tr>
<td>[MS2850A]</td>
<td>–100 MHz to 32.5 GHz (Option 047)</td>
</tr>
<tr>
<td></td>
<td>–100 MHz to 45 GHz (Option 046)</td>
</tr>
<tr>
<td>Resolution</td>
<td>1 Hz</td>
</tr>
<tr>
<td>Suffix code</td>
<td>HZ, KHZ, KZ, MHZ, MZ, GHZ, GZ</td>
</tr>
</tbody>
</table>

Hz is used when omitted.

Default

| [MS269xA] | 3.00 GHz (MS2690A) |
|           | 6.75 GHz (MS2691A) |
|           | 13.25 GHz (MS2692A) |
| [MS2830A] | 1.8 GHz (Option 040) |
|           | 3.0 GHz (Option 041) |
|           | 6.75 GHz (Option 043) |
|           | 13.25 GHz (Option 044) |
|           | 21.5 GHz (Option 045) |
| [MS2840A] | 1.8 GHz (Option 040) |
|           | 3.0 GHz (Option 041) |
|           | 13.25 GHz (Option 044) |
|           | 22.25 GHz (Option 046) |
| [MS2850A] | 16 GHz (Option 047) |
|           | 22.25 GHz (Option 046) |
2.1 Frequency/Span

Details

This command is not available during the Spurious Emission measurement. When Internal Signal Generator Control On/Off is On, the center frequency range depends on the frequency range of Signal Generator.

Example of Use

To set the center frequency to 123.456 kHz.
FREQ:CENT 123456
[:SENSe]:FREQuency:CENTer?

Center Frequency Query

Function
This command queries the center frequency.

Command
[:SENSe]:FREQuency:CENTer?

Response
<freq>

Parameter
<freq>  Center frequency

Range

[MS269xA]
–100 MHz to 6.05 GHz (MS2690A)
–100 MHz to 13.6 GHz (MS2691A)
–100 MHz to 26.6 GHz (MS2692A)

[MS2830A]
–100 MHz to 3.7 GHz (Option 040)
–100 MHz to 6.1 GHz (Option 041)
–100 MHz to 13.6 GHz (Option 043)
–100 MHz to 26.6 GHz (Option 044)
–100 MHz to 43.1 GHz (Option 045)

[MS2840A]
–100 MHz to 3.7 GHz (Option 040)
–100 MHz to 6.1 GHz (Option 041)
–100 MHz to 27 GHz (Option 044)
–100 MHz to 45 GHz (Option 046)

[MS2850A]
–100 MHz to 32.5 GHz (Option 047)
–100 MHz to 45 GHz (Option 046)

Resolution 1 Hz

Suffix code None. Value is returned in Hz units.

Default

[MS269xA]
3.00 GHz (MS2690A)
6.75 GHz (MS2691A)
13.25 GHz (MS2692A)

[MS2830A]
1.8 GHz (Option 040)
3.0 GHz (Option 041)
6.75 GHz (Option 043)
13.25 GHz (Option 044)
21.5 GHz (Option 045)

[MS2840A]
1.8 GHz (Option 040)
3.0 GHz (Option 041)
13.25 GHz (Option 044)
22.25 GHz (Option 046)

[MS2850A]
16 GHz (Option 047)
22.25 GHz (Option 046)
Example of Use

To query the center frequency.

FREQ:CENT?
> 123456

[:SENSe]:FREQuency:CENTer:STEP[:INCRement] <freq>

Frequency Step Size

Function

This command sets the step size of the center, start and stop frequency.

Command

[:SENSe]:FREQuency:CENTer:STEP[:INCRement] <freq>

Parameter

<table>
<thead>
<tr>
<th>&lt;freq&gt;</th>
<th>Step size</th>
</tr>
</thead>
<tbody>
<tr>
<td>Resolution</td>
<td>1 Hz</td>
</tr>
<tr>
<td>Suffix code</td>
<td>Hz, KHZ, KZ, MHZ, MZ, GHZ, GZ</td>
</tr>
<tr>
<td>Hz is used when omitted.</td>
<td></td>
</tr>
</tbody>
</table>

Example of Use

To set the step size to 100.0 kHz.

FREQ:CENT:STEP 100000
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[:SENSe]:FREQuency:CENTer:STEP[:INCRement]?  
Frequency Step Size Query

Function

This command queries the step size of the center, start and stop frequency.

Query

[:SENSe]:FREQuency:CENTer:STEP?

Response

<freq>

Parameter

<freq>  Step size

Range

[MS269xA]  
1 Hz to 6.0 GHz (MS2690A)
1 Hz to 13.5 GHz (MS2691A)
1 Hz to 26.5 GHz (MS2692A)

[MS2830A]  
1 Hz to 3.6 GHz (Option 040)
1 Hz to 6.0 GHz (Option 041)
1 Hz to 13.5 GHz (Option 043)
1 Hz to 26.5 GHz (Option 044)
1 Hz to 43 GHz (Option 045)

[MS2840A]  
1 Hz to 3.6 GHz (Option 040)
1 Hz to 6.0 GHz (Option 041)
1 Hz to 26.5 GHz (Option 044)
1 Hz to 44.5 GHz (Option 046)

[MS2850A]  
1 Hz to 32 GHz (Option 047)
1 Hz to 44.5 GHz (Option 046)

Resolution  1 Hz

Suffix code  None. Value is returned in Hz units.

Example of Use

To query the step size.

FREQ:CENT:STEP?

> 100000
[:SENSe]:FREQuency:OFFSet <freq>
Frequency Offset

Function
This command sets the frequency offset.

Command
[:SENSe]:FREQuency:OFFSet <freq>

Parameter

<table>
<thead>
<tr>
<th>Parameter</th>
<th>Offset</th>
</tr>
</thead>
<tbody>
<tr>
<td>&lt;freq&gt;</td>
<td></td>
</tr>
<tr>
<td>Range</td>
<td>–100 to 100 GHz</td>
</tr>
<tr>
<td>Resolution</td>
<td>1 Hz</td>
</tr>
<tr>
<td>Suffix code</td>
<td>HZ, KHZ, KZ, MHZ, MZ, GHZ, GZ</td>
</tr>
<tr>
<td>Default value</td>
<td>0 Hz</td>
</tr>
</tbody>
</table>

Hz is used when omitted.

Example of Use
To set the frequency offset to 10 MHz.
FREQ:OFFS 10MHZ

[:SENSe]:FREQuency:OFFSet?
Frequency Offset Query

Function
This command queries the frequency offset.

Query
[:SENSe]:FREQuency:OFFSet?

Response

<table>
<thead>
<tr>
<th>Parameter</th>
<th>Offset</th>
</tr>
</thead>
<tbody>
<tr>
<td>&lt;freq&gt;</td>
<td></td>
</tr>
</tbody>
</table>

Hz is used when omitted.

Example of Use
To query the frequency offset.
FREQ:OFFS?
> 10000000
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[:SENSe]:FREQuency:OFFSet:STATe ON|OFF|1|0
Frequency Offset Mode

Function
This command enables/disables the frequency offset.

Command
[:SENSe]:FREQuency:OFFSet:STATe <switch>

Parameter
<switch>
ON|1 Enables the frequency offset.
OFF|0 Disables the frequency offset (Default value).

Example of Use
To enable the frequency offset.
FREQ:OFFS:STAT ON

[:SENSe]:FREQuency:OFFSet:STATe?
Frequency Offset Mode Query

Function
This command queries the On/Off state of the frequency offset.

Query
[:SENSe]:FREQuency:OFFSet:STATe?

Response
<switch>

Parameter
<switch>
1 Frequency offset is enabled.
0 Frequency offset is disabled.

Example of Use
To query the On/Off state of the frequency offset.
FREQ:OFFS:STAT?
> 1
[:SENSe]:FREQuency:SPAN <freq>

Function

This command sets the frequency span.

Command

[:SENSe]:FREQuency:SPAN <freq>

Parameter

<freq>  Frequency span

Range

[MS269xA]
- 0 Hz, 300 Hz to 6.15 GHz (MS2690A)
- 0 Hz, 300 Hz to 13.7 GHz (MS2691A)
- 0 Hz, 300 Hz to 26.7 GHz (MS2692A)

[MS2830A]
- 0 Hz, 300 Hz to 3.8 GHz (Option 040)
- 0 Hz, 300 Hz to 6.2 GHz (Option 041)
- 0 Hz, 300 Hz to 13.7 GHz (Option 043)
- 0 Hz, 300 Hz to 26.7 GHz (Option 044)
- 0 Hz, 300 Hz to 43.2 GHz (Option 045)

[MS2840A]
- 0 Hz, 300 Hz to 3.8 GHz (Option 040)
- 0 Hz, 300 Hz to 6.2 GHz (Option 041)
- 0 Hz, 300 Hz to 27.1 GHz (Option 044)
- 0 Hz, 300 Hz to 45.1 GHz (Option 046)

[MS2850A]
- 0 Hz, 300 Hz to 32.6 GHz (Option 047)
- 0 Hz, 300 Hz to 45.1 GHz (Option 046)

Resolution

2 Hz
(Trace Point – 1) Hz
(When Internal Signal Generator Control On/Off is On.)

Suffix code

HZ, KHZ, KZ, MHZ, MZ, GHZ, GZ
Hz is used when omitted.

Default

[MS269xA]
- 6.00 GHz (MS2690A)
- 13.50 GHz (MS2691A)
- 26.50 GHz (MS2692A)

[MS2830A]
- 3.6 GHz (Option 040)
- 6.0 GHz (Option 041)
- 13.5 GHz (Option 043)
- 26.5 GHz (Option 044)
- 43 GHz (Option 045)

[MS2840A]
- 3.6 GHz (Option 040)
- 6.0 GHz (Option 041)
- 26.5 GHz (Option 044)
- 44.5 GHz (Option 046)
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[MS2850A]  32 GHz (Option 047)  
            44.5 GHz (Option 046)

Details

This command is not available during the Spectrum Emission Mask measurement or the Spurious Emission measurement.
Frequency span cannot be set to 0 Hz when Internal Signal Generator Control On/Off is On.
Frequency span cannot be set to 0 Hz when the N dB Bandwidth measurement function is On.

Example of Use

To set the frequency span to 1 GHz.
FREQ:SPAN 1GHZ

Related command

This command has the same function as the following commands.
[:SENSe]:ACP:REQuency:SPAN
[:SENSe]:CHP:REQuency:SPAN
[:SENSe]:OBWidth:REQuency:SPAN
[:SENSe]:FREQuency:SPAN?
Frequency Span Query

Function
This command queries the frequency span.

Query
[:SENSe]:FREQuency:SPAN?

Response
<freq>

Parameter
<freq> Frequency span

Range

[MS269xA]
0 Hz, 300 Hz to 6.15 GHz (MS2690A)
0 Hz, 300 Hz to 13.7 GHz (MS2691A)
0 Hz, 300 Hz to 26.7 GHz (MS2692A)

[MS2830A]
0 Hz, 300 Hz to 3.8 GHz (Option 040)
0 Hz, 300 Hz to 6.2 GHz (Option 041)
0 Hz, 300 Hz to 13.7 GHz (Option 043)
0 Hz, 300 Hz to 26.7 GHz (Option 044)
0 Hz, 300 Hz to 43.2 GHz (Option 045)

[MS2840A]
0 Hz, 300 Hz to 3.8 GHz (Option 040)
0 Hz, 300 Hz to 6.2 GHz (Option 041)
0 Hz, 300 Hz to 27.1 GHz (Option 044)
0 Hz, 300 Hz to 45.1 GHz (Option 046)

[MS2850A]
0 Hz, 300 Hz to 32.6 GHz (Option 047)
0 Hz, 300 Hz to 45.1 GHz (Option 046)

Resolution
2 Hz
(Trace Point – 1) Hz
(When Internal Signal Generator Control On/Off is On.)

Suffix code
HZ, KHZ, KZ, MHZ, MZ, GHZ, GZ
Hz is used when omitted.

Example of Use
To query the frequency span.
FREQ:SPAN?
> 10000000000
**Chapter 2  SCPI Device Message Details**

### Related command

This command has the same function as the following commands.

- [:SENSe]:ACPower:FREQuency:SPAN?
- [:SENSe]:CHPower:FREQuency:SPAN?
- [:SENSe]:OBWidth:FREQuency:SPAN?

### [:SENSe]:FREQuency:SPAN:FULL

**Full Span**

**Function**

This command maximizes the frequency span.

**Command**

[:SENSe]:FREQuency:SPAN:FULL

**Parameter**

- `<freq>`
  - Full span frequency

  **Range**

  - **[MS269xA]**
    - 6.15 GHz (MS2690A)
    - 13.70 GHz (MS2691A)
    - 27.10 GHz (MS2692A)

  - **[MS2830A]**
    - 3.8 GHz (Option 040)
    - 6.2 GHz (Option 041)
    - 13.7 GHz (Option 043)
    - 26.7 GHz (Option 044)
    - 43.2 GHz (Option 045)

  - **[MS2840A]**
    - 3.8 GHz (Option 040)
    - 6.2 GHz (Option 041)
    - 27.1 GHz (Option 044)
    - 45.1 GHz (Option 046)

  - **[MS2850A]**
    - 32.6 GHz (Option 047)
    - 45.1 GHz (Option 046)

**Details**

This command is not available during the Spectrum Emission Mask measurement or the Spurious Emission measurement.

**Example of Use**

To maximize the frequency span.

FREQ:SPAN:FULL

**Related command**

This command has the same function as the following commands.

- [:SENSe]:ACPower:FREQuency:SPAN:FULL
- [:SENSe]:CHPower:FREQuency:SPAN:FULL
- [:SENSe]:OBWidth:FREQuency:SPAN:FULL
[:SENSe]:FREQuency:STARt <freq>

Start Frequency

Function

This command sets the start frequency.

Command

[:SENSe]:FREQuency:STARt <freq>

Parameter

<table>
<thead>
<tr>
<th>&lt;freq&gt;</th>
<th>Start frequency</th>
</tr>
</thead>
<tbody>
<tr>
<td>Range</td>
<td></td>
</tr>
<tr>
<td>[MS269xA]</td>
<td>–100 MHz to 6.0499997 GHz (MS2690A)</td>
</tr>
<tr>
<td></td>
<td>–100 MHz to 13.5999997 GHz (MS2691A)</td>
</tr>
<tr>
<td></td>
<td>–100 MHz to 26.5999997 GHz (MS2692A)</td>
</tr>
<tr>
<td>[MS2830A]</td>
<td>–100 MHz to 3.6999997 GHz (Option 040)</td>
</tr>
<tr>
<td></td>
<td>–100 MHz to 6.0999997 GHz (Option 041)</td>
</tr>
<tr>
<td></td>
<td>–100 MHz to 13.5999997 GHz (Option 043)</td>
</tr>
<tr>
<td></td>
<td>–100 MHz to 26.5999997 GHz (Option 044)</td>
</tr>
<tr>
<td></td>
<td>–100 MHz to 43.0999997 GHz (Option 045)</td>
</tr>
<tr>
<td>[MS2840A]</td>
<td>–100 MHz to 3.6999997 GHz (Option 040)</td>
</tr>
<tr>
<td></td>
<td>–100 MHz to 6.0999997 GHz (Option 041)</td>
</tr>
<tr>
<td></td>
<td>–100 MHz to 26.9999997 GHz (Option 044)</td>
</tr>
<tr>
<td></td>
<td>–100 MHz to 44.9999997 GHz (Option 046)</td>
</tr>
<tr>
<td>[MS2850A]</td>
<td>–100 MHz to 32.4999997 GHz (Option 047)</td>
</tr>
<tr>
<td></td>
<td>–100 MHz to 44.9999997 GHz (Option 046)</td>
</tr>
</tbody>
</table>

| Resolution | 1 Hz |
| Suffix code | HZ, KHZ, KZ ,MHZ, MZ, GHZ, GZ |
| Hz is used when omitted. |

| Default value | 0 Hz |

Details

This command is not available during the Spectrum Emission Mask measurement or the Spurious Emission measurement. When Internal Signal Generator Control On/Off is On, the start frequency range depends on the frequency range of Signal Generator.

Example of Use

To set the start frequency to 1 GHz.

FREQ:STAR 1GHZ
Chapter 2  SCPI Device Message Details

[:SENSe]:FREQuency:STARt?
Start Frequency Query

Function
This command queries the start frequency.

Query
[:SENSe]:FREQuency:STARt?

Response
<freq>

Parameter
<freq>  Start frequency
Range

[MS269xA]  
-100 MHz to 6.0499997 GHz (MS2690A)
-100 MHz to 13.5999997 GHz (MS2691A)
-100 MHz to 26.5999997 GHz (MS2692A)

[MS2830A]  
-100 MHz to 3.6999997 GHz (Option 040)
-100 MHz to 6.0999997 GHz (Option 041)
-100 MHz to 13.5999997 GHz (Option 043)
-100 MHz to 26.5999997 GHz (Option 044)
-100 MHz to 43.0999997 GHz (Option 045)

[MS2840A]  
-100 MHz to 3.6999997 GHz (Option 040)
-100 MHz to 6.0999997 GHz (Option 041)
-100 MHz to 26.9999997 GHz (Option 044)
-100 MHz to 44.9999997 GHz (Option 046)

[MS2850A]  
-100 MHz to 32.4999997 GHz (Option 047)
-100 MHz to 44.9999997 GHz (Option 046)

Resolution  1 Hz
Suffix code  None. Value is returned in Hz units.

Example of Use
To query the start frequency.
FREQ:STAR?
> 1000000000
### [:SENSe]:FREQuency:STOP <freq>

**Stop Frequency**

This command sets the stop frequency.

#### Command

```
[:SENSe]:FREQuency:STOP <freq>
```

#### Parameter

Parameter: `<freq>`

**Stop frequency**

**Range**

- **[MS269xA]**
  - 99.9997 MHz to 6.05 GHz (MS2690A)
  - 99.9997 MHz to 13.6 GHz (MS2691A)
  - 99.9997 MHz to 26.6 GHz (MS2692A)
- **[MS2830A]**
  - 99.9997 MHz to 3.7 GHz (Option 040)
  - 99.9997 MHz to 6.1 GHz (Option 041)
  - 99.9997 MHz to 13.6 GHz (Option 043)
  - 99.9997 MHz to 26.6 GHz (Option 044)
  - 99.9997 MHz to 43.1 GHz (Option 045)
- **[MS2840A]**
  - 99.9997 MHz to 3.7 GHz (Option 040)
  - 99.9997 MHz to 6.1 GHz (Option 041)
  - 99.9997 MHz to 27 GHz (Option 044)
  - 99.9997 MHz to 45 GHz (Option 046)
- **[MS2850A]**
  - 99.9997 MHz to 32.5 GHz (Option 047)
  - 99.9997 MHz to 45 GHz (Option 046)

**Resolution**

1 Hz

**Suffix code**

HZ, KHZ, KZ, MHZ, MZ, GHZ, GZ

Hz is used when omitted.

#### Default

- **[MS269xA]**
  - 6.00 GHz (MS2690A)
  - 13.50 GHz (MS2691A)
  - 26.50 GHz (MS2692A)
- **[MS2830A]**
  - 3.6 GHz (Option 040)
  - 6.0 GHz (Option 041)
  - 13.5 GHz (Option 043)
  - 26.5 GHz (Option 044)
  - 43 GHz (Option 045)
- **[MS2840A]**
  - 3.6 GHz (Option 040)
  - 6.0 GHz (Option 041)
  - 26.5 GHz (Option 044)
  - 44.5 GHz (Option 046)
- **[MS2850A]**
  - 32 GHz (Option 047)
  - 44.5 GHz (Option 046)

#### Details

This command is not available during the Spectrum Emission Mask.
measurement or the Spurious Emission measurement.
When Internal Signal Generator Control On/Off is On, the stop frequency
range depends on the frequency range of Signal Generator.

Example of Use

To set the stop frequency to 10 MHz.
FREQ:STOP 10000KHZ

[:SENSe]:FREQuency:STOP?
Stop Frequency Query

Function

This command queries the stop frequency.

Query

[:SENSe]:FREQuency:STOP?

Response

<freq>

Parameter

<freq> Stop frequency

Range

[MS269xA] -99.9997 MHz to 6.05 GHz (MS2690A)
-99.9997 MHz to 13.6 GHz (MS2691A)
-99.9997 MHz to 26.6 GHz (MS2692A)

[MS2830A] -99.9997 MHz to 3.7 GHz (Option 040)
-99.9997 MHz to 6.1 GHz (Option 041)
-99.9997 MHz to 13.6 GHz (Option 043)
-99.9997 MHz to 26.6 GHz (Option 044)
-99.9997 MHz to 43.1 GHz (Option 045)

[MS2840A] -99.9997 MHz to 3.7 GHz (Option 040)
-99.9997 MHz to 6.1 GHz (Option 041)
-99.9997 MHz to 27 GHz (Option 044)
-99.9997 MHz to 45 GHz (Option 046)

[MS2850A] -99.9997 MHz to 32.5 GHz (Option 047)
-99.9997 MHz to 45 GHz (Option 046)

Resolution 1 Hz
Suffix code None. Value is returned in Hz units.

Example of Use

To query the stop frequency.
FREQ:STOP?
> 10000000
2.1 Frequency/Span

[:SENSe]:FREQuency:SPAN:ZERO

Zero Span

Function

This command sets the frequency span to 0 Hz (Time domain display).

Command

[:SENSe]:FREQuency:SPAN:ZERO

Details

When Zero Span is executed during other than the Burst Average measurement, the Measure function is set to Off.
This command is disabled when Internal Signal Generator Control On/Off or the N dB Bandwidth measurement function is set to On.

Example of Use

To set the frequency span to 0 Hz (Time domain display).

FREQ:SPAN:ZERO
[:SENSe]:FREQuency:BAND:MODE NORMal|SPURious

Frequency Band Mode

Function

This command sets the frequency band path. The frequency at which the path is switched to the preselector band or a path that does not pass through the preselector can be set with this function.

Command

[:SENSe]:FREQuency:BAND:MODE <mode>

Parameter

<mode> Frequency band mode

[MS269xA]
NORMal Sets the frequency to be switched to the preselector band to 6.0 GHz.
SPURious Sets the frequency to be switched to the preselector band to 3.0 GHz.

[MS2830A-041/043/044/045]
NORMal Sets the frequency to be switched to the preselector band to 4.0 GHz.
SPURious Sets the frequency to be switched to the preselector band to 3.5 GHz.

[MS2840A-041/044/046]
NORMal Sets the frequency to be switched to the preselector band to 4.0 GHz.
SPURious Sets the frequency to be switched to the preselector band to 3.5 GHz.

[MS2850A-047/046]
NORMal Sets the frequency to be switched to the preselector band to 4.0 GHz.
SPURious Sets the frequency to be switched to the preselector band to 3.5 GHz.

Details

[MS269xA]
This command is not available when the Option 003 Preselector lower limit frequency extension option is not installed.

[MS2830A]
This command is not available when used with the Option 040 3.6 GHz Signal Analyzer.

[MS2840A]
This command is not available when used with the Option 040 3.6 GHz Signal Analyzer.

Example of Use

To set the frequency to be switched to the preselector band to 6.0 GHz.
2.1 Frequency/Span

FREQ:BAND:MODE NORM

[:SENSe]:FREQuency:BAND:MODE?
Frequency Band Mode Query

Function
This command queries the frequency band path. The frequency at which the path is switched to the preselector band or a path that does not pass through the preselector can be set with this function.

Query

[:SENSe]:FREQuency:BAND:MODE?

Response

<mode>

Parameter

<mode> Frequency band mode

[MS269xA]
NORMal Sets the frequency to be switched to the preselector band to 6.0 GHz.
SPURious Sets the frequency to be switched to the preselector band to 3.0 GHz.

[MS2830A-041/043/044/045]
NORMal Sets the frequency to be switched to the preselector band to 4.0 GHz.
SPURious Sets the frequency to be switched to the preselector band to 3.5 GHz.

[MS2840A-041/044/046]
NORMal Sets the frequency to be switched to the preselector band to 4.0 GHz.
SPURious Sets the frequency to be switched to the preselector band to 3.5 GHz.

[MS2850A-047/046]
NORMal Sets the frequency to be switched to the preselector band to 4.0 GHz.
SPURious Sets the frequency to be switched to the preselector band to 3.5 GHz.

Example of Use
To query the frequency band path.
FREQ:BAND:MODE?
> NORM
[:SENSe]:FREQuency:BAND:MODE:STATe?
Frequency Band Mode Status Query

Function

This command queries the Spurious Mode status of the frequency band with the current measurement conditions.

Query

[:SENSe]:FREQuency:BAND:MODE:STATe?

Response

<status>

Parameter

<status>  
1  
0  

Spurious Mode status of frequency band
Includes the frequency band in Spurious Mode.
Does not include the frequency band in Spurious Mode.

Details

This command is available for MS2830A, MS2840A and MS2850A. When Spurious is selected for the Frequency Band Mode, the frequency band of Spurious Mode is included if the frequency range is $3.5 \text{ GHz} \leq f$.

Example of Use

To query the Spurious Mode status of the frequency band with the current measurement conditions.
FREQ:BAND:MODE:STAT?
> 1
**[:SENSe]:FREQuency:DOMain:COUPle ON|OFF|1|0**

**Couple Time/Freq. Domain**

**Function**
Sets whether to couple the time domain parameters and frequency domain parameters.

**Command**
[:SENSe]:FREQuency:DOMain:COUPle <switch>

**Parameter**

<table>
<thead>
<tr>
<th>&lt;switch&gt;</th>
<th>Enables/disables coupling</th>
</tr>
</thead>
<tbody>
<tr>
<td>ON</td>
<td>1</td>
</tr>
<tr>
<td>OFF</td>
<td>0</td>
</tr>
</tbody>
</table>

**Example of Use**

To disable coupling.
FREQ:DOM:COUP OFF

**[:SENSe]:FREQuency:DOMain:COUPle?**

**Couple Time/Freq. Domain Query**

**Function**
Queries whether the time domain parameters and frequency domain parameters are coupled.

**Query**
[:SENSe]:FREQuency:DOMain:COUPle?

**Response**

<switch>
Chapter 2  SCPI Device Message Details

<table>
<thead>
<tr>
<th>Parameter</th>
<th>Description</th>
</tr>
</thead>
<tbody>
<tr>
<td>&lt;switch&gt;</td>
<td>Enables/disables coupling</td>
</tr>
<tr>
<td>1</td>
<td>The RBW, VBW, detection mode, and trace point are coupled (shared) between the time domain and the frequency domain.</td>
</tr>
<tr>
<td>0</td>
<td>The RBW, VBW, detection mode, and trace point for the time domain are separate from those for the frequency domain.</td>
</tr>
</tbody>
</table>

Example of Use

To query whether coupling is enabled.
FREQ:DOM:COUP?
> 0

[:SENSe]:FREQency:SYNThesis[:STATe] BPHase|NORMal|FAST

Switching Speed

Function

This command sets the switching speed of frequency.

Command

[:SENSe]:FREQency:SYNThesis[:STATe] <mode>

Parameter

<table>
<thead>
<tr>
<th>&lt;mode&gt;</th>
<th>Description</th>
</tr>
</thead>
<tbody>
<tr>
<td>BPHase</td>
<td>Frequency switching speed. The operation is done so as to improve the phase noise characteristic rather than the frequency switching speed.</td>
</tr>
<tr>
<td>NORMal</td>
<td>Same as the setting of BPHase.</td>
</tr>
<tr>
<td>FAST</td>
<td>The operation is done so as to increase the frequency switching speed.</td>
</tr>
</tbody>
</table>

Details

This command is available for MS2830A, MS2840A, and MS2850A. Note that because the FAST setting gives priority to the switching speed of the local frequency, the phase noise characteristic worsens.

Example of Use

To set the frequency switching mode to the speed priority mode.
FREQ:SYNT FAST
2.1 Frequency/Span

[:SENSe]:FREQuency:SYNThesis[:STATe]?
Switching Speed Query

Function

This command queries the switching speed of frequency.

Query

[:SENSe]:FREQuency:SYNThesis[:STATe]?

Response

<mode>

Parameter

<mode> Frequency switching speed
BPH The operation is done so as to improve the phase noise characteristic rather than the frequency switching speed.
FAST The operation is done so as to increase the frequency switching speed.

Details

This command is available for MS2830A, MS2840A, and MS2850A. Note that because the FAST setting gives priority to the switching speed of the local frequency, the phase noise characteristic worsens.

Example of Use

To query frequency switching speed
FREQ:SYNT?
> FAST
## 2.2 Level

The table below shows device messages for level.

**Table 2.2-1  Device messages for level**

<table>
<thead>
<tr>
<th>Function</th>
<th>Device Message</th>
</tr>
</thead>
<tbody>
<tr>
<td>Reference Level</td>
<td>DISPLAY:WINDow[1]:TRACE:Y[:SCALe]:RLEvel &lt;real&gt;</td>
</tr>
<tr>
<td></td>
<td>DISPLAY:WINDow[1]:TRACE:Y[:SCALe]:RLEvel?</td>
</tr>
<tr>
<td>RF Attenuator</td>
<td>[:SENSe]:POWer[:RF]:ATTenuation &lt;rel_ampl&gt;</td>
</tr>
<tr>
<td>Auto/Manual</td>
<td>[:SENSe]:POWer[:RF]:ATTenuation:AUTO ON</td>
</tr>
<tr>
<td></td>
<td>[:SENSe]:POWer[:RF]:ATTenuation:AUTO?</td>
</tr>
<tr>
<td>Log Scale Range</td>
<td>DISPLAY:WINDow[1]:TRACE:Y[:SCALe][:LOGarithmic]:PDIVision &lt;rel_ampl&gt;</td>
</tr>
<tr>
<td></td>
<td>DISPLAY:WINDow[1]:TRACE:Y[:SCALe][:LOGarithmic]:PDIVision?</td>
</tr>
<tr>
<td>Scale Mode</td>
<td>DISPLAY:WINDow[1]:TRACE:Y[:SCALe]:SPACing LINEar</td>
</tr>
<tr>
<td></td>
<td>DISPLAY:WINDow[1]:TRACE:Y[:SCALe]:SPACing?</td>
</tr>
<tr>
<td>Log Scale Unit</td>
<td>UNIT:POWer DBM</td>
</tr>
<tr>
<td></td>
<td>UNIT:POWer?</td>
</tr>
<tr>
<td>Linear Scale Range</td>
<td>DISPLAY:WINDow[1]:TRACE:Y[:SCALe]:LINear:PDIVision &lt;percent&gt;</td>
</tr>
<tr>
<td></td>
<td>DISPLAY:WINDow[1]:TRACE:Y[:SCALe]:LINear:PDIVision?</td>
</tr>
<tr>
<td>Log Scale Line</td>
<td>DISPLAY:WINDow[1]:TRACE:Y[:SCALe][:LOGarithmic] &lt;lines&gt;</td>
</tr>
<tr>
<td></td>
<td>DISPLAY:WINDow[1]:TRACE:Y[:SCALe][:LOGarithmic]?</td>
</tr>
<tr>
<td>Ref.Level Offset</td>
<td>DISPLAY:WINDow[1]:TRACE:Y[:SCALe]:RLEvel:OFFSet &lt;rel_ampl&gt;</td>
</tr>
<tr>
<td>Value</td>
<td>DISPLAY:WINDow[1]:TRACE:Y[:SCALe]:RLEvel:OFFSet?</td>
</tr>
<tr>
<td>Reference Level</td>
<td>DISPLAY:WINDow[1]:TRACE:Y[:SCALe]:RLEvel:OFFSet:STATe ON</td>
</tr>
<tr>
<td>Offset Mode</td>
<td>DISPLAY:WINDow[1]:TRACE:Y[:SCALe]:RLEvel:OFFSet:STATe?</td>
</tr>
<tr>
<td>Pre Amp</td>
<td>[:SENSe]:POWer[:RF]:GAIN[:STATe] ON</td>
</tr>
<tr>
<td></td>
<td>[:SENSe]:POWer[:RF]:GAIN[:STATe]?</td>
</tr>
<tr>
<td>Log Scale Line</td>
<td>DISPLAY:WINDow[1]:TRACE:Y[:SCALe]:LINE[:LOGarithmic] &lt;lines&gt;</td>
</tr>
<tr>
<td></td>
<td>DISPLAY:WINDow[1]:TRACE:Y[:SCALe]:LINE[:LOGarithmic]?</td>
</tr>
<tr>
<td>Impedance</td>
<td>[:SENSe]:CORRection:IMPedance[:INPut][:MAGNitude] 50</td>
</tr>
</tbody>
</table>
|                     | [:SENSe]:CORRection:IMPedance[:INPut][:MAGNitude]?
:DISPlay:WINDow[1]:TRACe:Y[:SCALe]:RLEVel <real>

Reference Level

Function

This command sets the reference level.

Command

:DISPlay:WINDow[1]:TRACe:Y[:SCALe]:RLEVel <real>

Parameter

<real> Reference level

Range

Value equivalent to –130 to +50 dBm

Resolution

0.01 dB (When scale unit settings are dB-system units)
0.01 pV (When scale unit settings are V-system units)
0.01 yW (When scale unit settings are W-system units)

Suffix code

<table>
<thead>
<tr>
<th>Suffix code</th>
<th>Unit</th>
</tr>
</thead>
<tbody>
<tr>
<td>DBM, DM</td>
<td>dBm</td>
</tr>
<tr>
<td>DBMV</td>
<td>dBmV</td>
</tr>
<tr>
<td>DBUV</td>
<td>dBµV</td>
</tr>
<tr>
<td>DBUVE</td>
<td>dBµV (emf)</td>
</tr>
<tr>
<td>DBUVM</td>
<td>dBµV/m</td>
</tr>
<tr>
<td>V</td>
<td>V</td>
</tr>
<tr>
<td>MV</td>
<td>mV</td>
</tr>
<tr>
<td>UV</td>
<td>µV</td>
</tr>
<tr>
<td>W</td>
<td>W</td>
</tr>
<tr>
<td>MW</td>
<td>mW</td>
</tr>
<tr>
<td>UW</td>
<td>µW</td>
</tr>
<tr>
<td>NW</td>
<td>nW</td>
</tr>
<tr>
<td>PW</td>
<td>pW</td>
</tr>
<tr>
<td>FW</td>
<td>fW</td>
</tr>
</tbody>
</table>

Scale unit settings apply when omitted. V is used for Linear Scale.

Default value

0 dBm

Details

This command is not available when Spurious Emission is On and Gate View is Off.
Example of Use

To set the reference level to 0 dBm.

DISP:WIND:TRAC:Y:RLEV 0DBM

Related command

This command has the same function as the following commands.

:DISP:ACPower:VIEW[1]:WINDow[1]:TRACe:Y[:SCALe]:RLEV
:DISP:CHPower:VIEW[1]:WINDow[1]:TRACe:Y[:SCALe]:RLEV
:DISP:OBWidth:VIEW[1]:WINDow[1]:TRACe:Y[:SCALe]:RLEV
:DISP:SEMask:VIEW[1]:WINDow[1]:TRACe:Y[:SCALe]:RLEV
:DISP:BPOWer|:TXPower:VIEW[1]:WINDow[1]:TRACe:Y[:SCALe]:RLEV
Reference Level Query

Function

This command queries the reference level.

Query

`:DISPlay:WINDow[1]:TRACe:Y[:SCALe]:RLEVel?`

Response

`<real>`

Parameter

`<real>` Reference level

Range Value equivalent to –130 to +50 dBm
Resolution 0.01 dB (When scale unit settings are dB-system units)
0.01 pV (When scale unit settings are V-system units)
0.01 yW (When scale unit settings are W-system units)

Suffix code None. Value is returned in dBm units.

Example of Use

To query the reference level.

```
DISP:WIND:TRAC:Y:RLEV?
> 0.00
```

Related command

This command has the same function as the following commands.

`:DISPlay:ACPower:VIEW[1]:WINDow[1]:TRACe:Y[:SCALe]:RLEVel?`
`:DISPlay:CHPower:VIEW[1]:WINDow[1]:TRACe:Y[:SCALe]:RLEVel?`
`:DISPlay:OBWidth:VIEW[1]:WINDow[1]:TRACe:Y[:SCALe]:RLEVel?`
`:DISPlay:SEMask:VIEW[1]:WINDow[1]:TRACe:Y[:SCALe]:RLEVel?`
[:SENSe]:POWer[:RF]:ATTenuation <rel_ampl>

RF Attenuator

Function

This command sets the attenuation.

Command

[:SENSe]:POWer[:RF]:ATTenuation <rel_ampl>

Parameter

<rel_ampl>   Attenuation
  Range       0 to 60 dB
  Resolution

  [MS269xA], [MS2850A]
    2 dB
  [MS2830A], [MS2840A]
    2 dB or 10 dB

  Refer to “Table 2.4.2-3 Resolution of Input Attenuator” in the
  MS2830A/MS2840A/MS2850A Signal Analyzer Operation
  Manual (Spectrum Analyzer Function Operation).

  Suffix code   DB, dB is used even when omitted.
  Default value 10 dB

Details

This command is not available in the following situations:
• When Spurious Emission is On AND when Gate View is Off.

Example of Use

To set the attenuation to 10 dB.
POW:ATT 10
[:SENSe]:POWer[:RF]:ATTenuation?

RF Attenuator Query

Function

This command queries the attenuation.

Query

[:SENSe]:POWer[:RF]:ATTenuation?

Response

<rel_ampl>

Parameter

<rel_ampl> Attenuation
Range 0 to 60 dB
Resolution

[MS269xA], [MS2850A] 2 dB
[MS2830A], [MS2840A] 2 dB or 10 dB

Refer to “Table 2.4.2-3 Resolution of Input Attenuator” in the MS2830A/MS2840A/MS2850A Signal Analyzer Operation Manual (Spectrum Analyzer Function Operation).

Suffix code None. Value is returned in dB units.

Example of Use

To query the attenuation.
POW:ATT?
> 10
RF Attenuator Auto/Manual

Function

This command enables/disables the automatic attenuation setting function.

Command

[:SENSe]:POWer[:RF]:ATTenuation:AUTO <switch>

Parameter

<switch>          Automatic attenuation setting function On/Off state
0 | OFF        Disables the automatic attenuation setting function.
1 | ON        Enables the automatic attenuation setting function (Default value).

Details

This command is not available in the following situations:
- When Spurious Emission is On AND when Gate View is Off.

Example of Use

To enable the automatic attenuation setting function.

POW:ATT:AUTO ON
[:SENSe]:POWer[:RF]:ATTenuation:AUTO?
RF Attenuator Auto/Manual Query

Function

This command queries the On/Off state of the automatic attenuation.

Query

[:SENSe]:POWer[:RF]:ATTenuation:AUTO?

Response

<switch>

Parameter

<switch>  Automatic attenuation is disabled/enabled.
          0         Disabled.
          1         Enabled.

Example of Use

To query the On/Off state of the automatic attenuation setting.
POW:ATT:AUTO?
> 1
Chapter 2  SCPI Device Message Details

:DISPLAY:WINDow[1]:TRACe:Y[:SCALe][:LOGarithmic]:PDIVision <rel_ampl>

Log Scale Range

Function

This command sets the Y-axis scale magnification when Scale Mode is set to Log.

Command

:DISPLAY:WINDow[1]:TRACe:Y[:SCALe][:LOGarithmic]:PDIVision <rel_ampl>

Parameter

<table>
<thead>
<tr>
<th>&lt;rel_ampl&gt;</th>
<th>Y-axis scale magnification</th>
</tr>
</thead>
<tbody>
<tr>
<td>0.1</td>
<td>0.1 dB/div</td>
</tr>
<tr>
<td>0.2</td>
<td>0.2 dB/div</td>
</tr>
<tr>
<td>0.5</td>
<td>0.5 dB/div</td>
</tr>
<tr>
<td>1</td>
<td>1 dB/div</td>
</tr>
<tr>
<td>2</td>
<td>2 dB/div</td>
</tr>
<tr>
<td>5</td>
<td>5 dB/div</td>
</tr>
<tr>
<td>10</td>
<td>10 dB/div</td>
</tr>
<tr>
<td>20</td>
<td>20 dB/div</td>
</tr>
<tr>
<td>Default value</td>
<td>10 dB/div</td>
</tr>
</tbody>
</table>

Example of Use

To set the scale magnification to 0.5 dB/div.

DISP:WIND:TRAC:Y:PDIV 0.5

Related command

This command has the same function as the following commands.

:DISPLAY:ACPower:VIEW[1]:WINDow[1]:TRACe:Y[:SCALe]:PDIVision
:DISPLAY:CHPower:VIEW[1]:WINDow[1]:TRACe:Y[:SCALe]:PDIVision
:DISPLAY:OBWidth:VIEW[1]:WINDow[1]:TRACe:Y[:SCALe]:PDIVision
:DISPLAY:SEMask:VIEW[1]:WINDow[1]:TRACe:Y[:SCALe]:PDIVision
:DISPLAY:BPOWer|:TXPower:VIEW[1]:WINDow[1]:TRACe:Y[:SCALe]:PDIVision
Log Scale Range Query

Function

This command queries the Y-axis scale magnification when Scale Mode is set to Log.

Query

`:DISPlay:WINDow[1]:TRACe:Y[:SCALe][:LOGarithmic]:PDIVision?`

Response

`:DISPlay:WINDow[1]:TRACe:Y[:SCALe][:LOGarithmic]:PDIVision?`

Parameter

Y-axis scale magnification

```
<rel_ampl>
0.1  0.1 dB/div
0.2  0.2 dB/div
0.5  0.5 dB/div
1    1 dB/div
2    2 dB/div
5    5 dB/div
10   10 dB/div
20   20 dB/div
```

Example of Use

To query the scale magnification.
```
DISP:WIND:TRAC:Y:PDIV?
> 0.5
```

Related command

This command has the same function as the following commands.
```
:DISPlay:ACPower:VIEW[1]:WINDow[1]:TRACe:Y[:SCALe]:PDIVision?
:DISPlay:CHPower:VIEW[1]:WINDow[1]:TRACe:Y[:SCALe]:PDIVision?
:DISPlay:OBWidth:VIEW[1]:WINDow[1]:TRACe:Y[:SCALe]:PDIVision?
:DISPlay:SEMask:WINDow[1]:TRACe:Y[:SCALe]:PDIVision?
:DISPlay:BPOWer|:TXPower:VIEW[1]:WINDow[1]:TRACe:Y[:SCALe]:PDIVision?
```
Chapter 2  SCPI Device Message Details

:DISPlay:WINDow[1]:TRACe:Y[:SCALe]:SPACing LINear|LOGarithmic

Scale Mode

Function

This command switches the scale mode.

Command

:DISPlay:WINDow[1]:TRACe:Y[:SCALe]:SPACing <mode>

Parameter

<mode>  Scale mode
   LOGarithmic  Log scale (Default value)
   LINear  Linear scale

Details

When the scale mode has been set to Linear, the following functions are set to Off.
   ● Measure function
   ● Math function (Log calculation)

Example of Use

To set the scale mode to linear scale.
DISP:WIND:TRAC:Y:SPAC LIN

:DISPlay:WINDow[1]:TRACe:Y[:SCALe]:SPACing?

Scale Mode Query

Function

This command queries the scale mode.

Query

:DISPlay:WINDow[1]:TRACe:Y[:SCALe]:SPACing?

Response

<mode>

Parameter

<mode>  Scale mode
   LOG  Log scale
   LIN  Linear scale

Example of Use

To query the scale mode.
DISP:WIND:TRAC:Y:SPAC?
> LIN
:UNIT:POWer DBM|DBMV|V|W|DBUV|DBUVE|DBUVM

Log Scale Unit

Function

This command sets the level display unit system at log scale.

Command

:UNIT:POWer <unit>

Parameter

<unit>  

Level display unit system at log scale

DBM  dBm
DBMV  dBmV
DBUV  dBµV
DBUVE  dBmV (emf)
V  V
W  W
DBUVM  dBµV/m

Default value  dBm

Details

This command is not available during the Spectrum Emission Mask measurement or the Spurious Emission measurement.

If V (W) is selected and a measurement result is 99.999 GV (GW) or more, 99.999 GV (GW) or more is displayed.

When Internal Signal Generator Control On/Off is On, the level display unit is fixed to dBm.

Example of Use

To set the level display unit system at log scale to V.

UNIT:POW V
:UNIT:POWer?
Log Scale Unit Query

Function

This command queries the level display unit system at Log scale.

Query

:UNIT:POWer?

Response

<unit>

Parameter

<unit> Level display unit system at Log scale
DBM dBm
DBMV dBmV
DBUV dBµV
DBUVE dBmV (emf)
V V
W W
DBUVM dBµV/m

Example of Use

To query the level display unit system at Log scale.
UNIT:POW?
> V
:DISPlay:WINDow[1]:TRACe:Y[:SCALe]:LINear:PDIVision <percent>

Linear Scale Range

**Function**

This command sets the Y-axis scale magnification for the linear scale display.

**Command**

:DISPlay:WINDow[1]:TRACe:Y[:SCALe]:LINear:PDIVision <percent>

**Parameter**

<table>
<thead>
<tr>
<th>&lt;percent&gt;</th>
<th>Y-axis scale magnification</th>
</tr>
</thead>
<tbody>
<tr>
<td>1</td>
<td>1 %/div</td>
</tr>
<tr>
<td>2</td>
<td>2 %/div</td>
</tr>
<tr>
<td>5</td>
<td>5 %/div</td>
</tr>
<tr>
<td>10</td>
<td>10 %/div</td>
</tr>
</tbody>
</table>

**Example of Use**

To set the scale magnification to 5%/div.

DISP:WIND:TRAC:YLIN:PDIV 5

:DISPlay:WINDow[1]:TRACe:Y[:SCALe]:LINear:PDIVision?

Linear Scale Range Query

**Function**

This command queries the Y-axis scale magnification when Scale Mode is set to Linear.

**Query**

:DISPlay:WINDow[1]:TRACe:Y[:SCALe]:LINear:PDIVision?

**Response**

<percent>

**Parameter**

<table>
<thead>
<tr>
<th>&lt;percent&gt;</th>
<th>Y-axis scale magnification</th>
</tr>
</thead>
<tbody>
<tr>
<td>1</td>
<td>1 %/div</td>
</tr>
<tr>
<td>2</td>
<td>2 %/div</td>
</tr>
<tr>
<td>5</td>
<td>5 %/div</td>
</tr>
<tr>
<td>10</td>
<td>10 %/div</td>
</tr>
</tbody>
</table>
Chapter 2  SCPI Device Message Details

Example of Use

To query the scale magnification.

DISP:WIND:TRAC:Y:LIN:PDIV?
> 5

:DISPlay:WINDow[1]:TRACe:Y[:SCALe][:LOGarithmic] <lines>

Log Scale Line

Function

This command sets the number of Y-axis scale segments in Log scale mode.

Command

:DISPlay:WINDow[1]:TRACe:Y[:SCALe][:LOGarithmic] <lines>

Parameter

<lines> Number of Y-axis scale segments
10 10 segments (Default value)
12 12 segments

Details

This command is available only in Log scale mode.

Example of Use

To set the number of Y-axis scale segments in Log scale mode to 12.

DISP:WIND:TRAC:Y 12
:DISPlay:WINDow[1]:TRACe:Y[:SCALe][:LOGarithmic]?

Log Scale Line Query

Function

This command queries the number of Y-axis segments in Log scale mode.

Query

:DISPlay:WINDow[1]:TRACe:Y[:SCALe][:LOGarithmic]?

Response

<lines>

Parameter

<lines> Number of Y-axis scale segments
10 10 segments
12 12 segments

Details

This command is available only in Log scale mode.

Example of Use

To query the number of Y-axis scale segments in Log scale mode.
DISP:WIND:TRAC:Y?
> 12
Chapter 2  SCPI Device Message Details

:DISPlay:WINDow[1]:TRACe:Y[:SCALe]:RLEVel:OFFSet <rel_ampl>
Ref. Level Offset Value

Function
This command sets the offset value of the reference level offset function.

Command
:DISPlay:WINDow[1]:TRACe:Y[:SCALe]:RLEVel:OFFSet <rel_ampl>

Parameter

<table>
<thead>
<tr>
<th>Parameter</th>
<th>Description</th>
<th>Range</th>
<th>Resolution</th>
<th>Suffix code</th>
</tr>
</thead>
<tbody>
<tr>
<td>&lt;rel_ampl&gt;</td>
<td>Reference level offset value</td>
<td>–100.00</td>
<td>0.01 dB</td>
<td>DB</td>
</tr>
<tr>
<td></td>
<td></td>
<td>to +100.00 dB</td>
<td></td>
<td>dB is used even when omitted.</td>
</tr>
<tr>
<td></td>
<td>Default value</td>
<td>0 dB</td>
<td></td>
<td></td>
</tr>
</tbody>
</table>

Example of Use
To set the reference level offset function to ON at +10 dB.
DISP:WIND:TRAC:Y:RLEV:OFFS 10

:DISPlay:WINDow[1]:TRACe:Y[:SCALe]:RLEVel:OFFSet?
Ref. Level Offset Value Query

Function
This command queries the offset value of the reference level offset function.

Query
:DISPlay:WINDow[1]:TRACe:Y[:SCALe]:RLEVel:OFFSet?

Response
<rel_ampl>

Parameter

<table>
<thead>
<tr>
<th>Parameter</th>
<th>Description</th>
<th>Range</th>
<th>Resolution</th>
<th>Suffix code</th>
</tr>
</thead>
<tbody>
<tr>
<td>&lt;rel_ampl&gt;</td>
<td>Reference level offset value</td>
<td>–100.00</td>
<td>0.01 dB</td>
<td>DB</td>
</tr>
<tr>
<td></td>
<td></td>
<td>to +100.00 dB</td>
<td></td>
<td>dB is used even when omitted.</td>
</tr>
</tbody>
</table>
Example of Use

To query the reference level offset.
DISP:WIND:TRAC:Y:RLEV:OFFS?
> 10.00

:DISPlay:WINDow[1]:TRACe:Y[:SCALe]:RLEVel:OFFSet:STATe ON|OFF|1|0

Reference Level Offset Mode

Function

This command enables/disables the reference level offset function.

Command

:DISPlay:WINDow[1]:TRACe:Y[:SCALe]:RLEVel:OFFSet:STATe <switch>

Parameter

<switch> Reference level offset function On/Off

ON|1 Enables the reference level offset function.
OFF|0 Disables the reference level offset function (Default value).

Example of Use

To enable the reference level offset function.
DISP:WIND:TRAC:Y:RLEV:OFFS:STAT ON
Chapter 2  SCPI Device Message Details

:DISPlay:WINDow[1]:TRACe:Y[:SCALe]:RLEVel:OFFSet:STATe?
Reference Level Offset Mode Query

Function
This command queries the On/Off state of the reference level offset function.

Command
:DISPlay:WINDow[1]:TRACe:Y[:SCALe]:RLEVel:OFFSet:STATe?

Response
<switch>

Parameter
<switch> Reference level offset function On/Off
1 Reference level offset function is enabled.
0 Reference level offset function is disabled.

Example of Use
To query the On/Off state of the reference level offset function.
> 1

[:SENSe]:POWer[:RF]:GAIN[:STATe] ON|OFF|1|0

Pre Amp

Function
This command sets Pre Amp to On/Off.

Command
[:SENSe]:POWer[:RF]:GAIN[:STATe] <switch>

Parameter
<switch> Pre Amp On/Off
ON|1 Pre Amp is set to On.
OFF|0 Pre Amp is set to Off (Default value).

Details
[MS269xA]
This command is fixed to Off and cannot be set when the Option 008/108 6 GHz Preamplifier is not installed.

[MS2830A]
This command is fixed to Off and cannot be set when the Option
008/108/068/168 Preamplifier is not installed.

[MS2840A]
This command is fixed to Off and cannot be set when the Option 008/108/068/168/069/169 Preamplifier is not installed.

[MS2850A]
This command is fixed to Off and cannot be set when the Option 068/168 Preamplifier is not installed.

[Common]
This is not available when Spurious Emission is On, and Gate View is Off.

Example of Use

To set Pre Amp to On.
POW:GAIN ON

[:SENSe]:POWer[:RF]:GAIN[:STATe]?
Pre Amp Query

Function
This command queries the On/Off state of the Pre-amplifier.

Query
[:SENSe]:POW[er][:RF]:GAIN[:STATe]?

Response
<switch>

Parameter
<switch>

Pre-amplifier On/Off
1 On
0 Off (Default value)

Example of Use

To query the On/Off state of the Pre-amplifier.
POW:GAIN?
> 1
Log Scale Line

Function

This command sets the number of Y-axis segments in Log scale mode.

Command

:DISPlay:WINDow[1]:TRACe:Y[:SCALe]:LINE[:LOGarithmic] <lines>

Parameter

Number of Y-axis scale segments
10  10 segments (Default value)
12  12 segments

Details

This function can be set only in Log scale mode.

Example of Use

To set the number of Y-axis segments in Log scale mode to 12.
DISP:WIND:TRAC:Y:LINE 12

Log Scale Line Query

Function

This command queries the number of Y-axis scale segments in Log scale mode.

Query

:DISPlay:WINDow[1]:TRACe:Y[:SCALe]:LINE[:LOGarithmic]?

Response

Number of Y-axis scale segments
10  10 segments
12  12 segments

Example of Use

To query the number of Y-axis scale segments for Log scale.
DISP:WIND:TRAC:Y:LINE?
> 12
[:SENSe]:CORRection:IMPedance[:INPut][:MAGNitude] 50|75

Impedance

Function

This command sets the input impedance.

Command

[:SENSe]:CORRection:IMPedance[:INPut][:MAGNitude] 50|75

Parameter

<table>
<thead>
<tr>
<th>&lt;mode&gt;</th>
<th>Impedance</th>
<th></th>
<th></th>
<th></th>
</tr>
</thead>
<tbody>
<tr>
<td>50</td>
<td>Sets impedance to 50 Ω. (Default)</td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td>75</td>
<td>Sets impedance to 75 Ω.</td>
<td></td>
<td></td>
<td></td>
</tr>
</tbody>
</table>

Example of Use

To set the impedance to 75 Ω.

CORR:IMP 75

[:SENSe]:CORRection:IMPedance[:INPut][:MAGNitude]?

Impedance Query

Function

This command queries the input impedance setting.

Query

[:SENSe]:CORRection:IMPedance[:INPut][:MAGNitude]?

Response

<table>
<thead>
<tr>
<th>&lt;mode&gt;</th>
<th>Impedance</th>
<th></th>
<th></th>
<th></th>
</tr>
</thead>
<tbody>
<tr>
<td>50</td>
<td>To set the impedance to 50 Ω.</td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td>75</td>
<td>To set the impedance to 75 Ω.</td>
<td></td>
<td></td>
<td></td>
</tr>
</tbody>
</table>

Example of Use

To query the input impedance setting.

CORR:IMP?

> 75
### 2.3 RBW/VBW

Table 2.3-1 lists device messages for RBW/VBW.

**Table 2.3-1 Device messages for RBW/VBW**

<table>
<thead>
<tr>
<th>Function</th>
<th>Device Message</th>
</tr>
</thead>
<tbody>
<tr>
<td><strong>Resolution Bandwidth</strong></td>
<td>[:SENSe]:BANDwidth</td>
</tr>
<tr>
<td></td>
<td>[:SENSe]:BANDwidth</td>
</tr>
<tr>
<td></td>
<td>:CALCulate:BANDwidth</td>
</tr>
<tr>
<td></td>
<td>:CALCulate:BANDwidth</td>
</tr>
<tr>
<td><strong>Resolution Bandwidth</strong></td>
<td>[:SENSe]:BANDwidth</td>
</tr>
<tr>
<td><strong>Auto/Manual</strong></td>
<td>[:SENSe]:BANDwidth</td>
</tr>
<tr>
<td></td>
<td>:CALCulate:BANDwidth</td>
</tr>
<tr>
<td></td>
<td>:CALCulate:BANDwidth</td>
</tr>
<tr>
<td><strong>Resolution</strong></td>
<td>[:SENSe]:BANDwidth</td>
</tr>
<tr>
<td><strong>Bandwidth Normal/CISPR</strong></td>
<td>[:SENSe]:BANDwidth</td>
</tr>
<tr>
<td></td>
<td>:CALCulate:BANDwidth</td>
</tr>
<tr>
<td></td>
<td>:CALCulate:BANDwidth</td>
</tr>
<tr>
<td><strong>Video Bandwidth</strong></td>
<td>[:SENSe]:BANDwidth</td>
</tr>
<tr>
<td><strong>Auto/Manual</strong></td>
<td>[:SENSe]:BANDwidth</td>
</tr>
<tr>
<td></td>
<td>[:SENSe]:BANDwidth</td>
</tr>
<tr>
<td></td>
<td>[:SENSe]:BANDwidth</td>
</tr>
<tr>
<td><strong>Video Bandwidth</strong></td>
<td>[:SENSe]:BANDwidth</td>
</tr>
<tr>
<td><strong>Mode</strong></td>
<td>[:SENSe]:BANDwidth</td>
</tr>
<tr>
<td></td>
<td>[:SENSe]:FREQency:SPAN:BANDwidth</td>
</tr>
<tr>
<td><strong>Span:RBW Ratio Switch</strong></td>
<td>[:SENSe]:FREQency:SPAN:BANDwidth</td>
</tr>
<tr>
<td><strong>Span:RBW Ratio</strong></td>
<td>[:SENSe]:FREQency:SPAN:BANDwidth</td>
</tr>
<tr>
<td></td>
<td>[:SENSe]:FREQency:SPAN:BANDwidth</td>
</tr>
</tbody>
</table>
[:SENSe]:BANDwidth|:BWIDth[:RESolution] <freq>

Resolution Bandwidth

This command sets the resolution bandwidth (RBW). When Couple Time/Freq. Domain is set to Off, each parameter is specified in accordance with the already-specified frequency axis or time axis measurement.

Command

[:SENSe]:BANDwidth|:BWIDth[:RESolution] <freq>

Parameter

<table>
<thead>
<tr>
<th>Parameter</th>
<th>Description</th>
</tr>
</thead>
<tbody>
<tr>
<td>&lt;freq&gt;</td>
<td>Resolution bandwidth (RBW)</td>
</tr>
</tbody>
</table>

**[MS269xA]**

<table>
<thead>
<tr>
<th>Range/Resolution</th>
<th>30 Hz to 31.25 MHz</th>
</tr>
</thead>
<tbody>
<tr>
<td></td>
<td>However, the settable value is 30 Hz to 3 MHz (for 1 to 3 sequences), 50 kHz, 5 MHz, 10 MHz, or 20 MHz, or 31.25 MHz.</td>
</tr>
</tbody>
</table>

**[MS2830A], [MS2840A]**

<table>
<thead>
<tr>
<th>RBW Mode Normal</th>
<th>Range/Resolution</th>
<th>1 Hz to 31.25 MHz</th>
</tr>
</thead>
<tbody>
<tr>
<td>RBW Mode CISPR</td>
<td>Range/Resolution</td>
<td>The settable value is 200 Hz, 9 kHz, 120 kHz, or 1 MHz.</td>
</tr>
</tbody>
</table>

<table>
<thead>
<tr>
<th>Default</th>
<th>Value set in CISPR RBW Auto</th>
</tr>
</thead>
</table>

**[MS2850A]**

<table>
<thead>
<tr>
<th>Range/Resolution</th>
<th>1 Hz to 10 MHz</th>
</tr>
</thead>
<tbody>
<tr>
<td></td>
<td>However, the settable value is 1 Hz to 3 MHz (for 1 to 3 sequences), 500 Hz, 50 kHz, 2 MHz, 5 MHz, 10 MHz, 20 MHz, or 31.25 MHz.</td>
</tr>
</tbody>
</table>

**[Common]**

<table>
<thead>
<tr>
<th>Suffix code</th>
<th>HZ, KHZ, KZ, MHZ, MZ, GHZ, GZ</th>
</tr>
</thead>
<tbody>
<tr>
<td>Hz is used when omitted.</td>
<td></td>
</tr>
</tbody>
</table>

<table>
<thead>
<tr>
<th>Default</th>
<th>Value set in RBW Auto</th>
</tr>
</thead>
<tbody>
<tr>
<td></td>
<td>(Except RBW Mode CISPR)</td>
</tr>
</tbody>
</table>
Details

In MS269xA, MS2830A, MS2840A RBW Mode: Normal
- The resolution bandwidth Auto setting is switched off when the resolution bandwidth (RBW) is changed.
- For MS2830A, MS2840A RBW 20 MHz or greater is only available for MS2830A-005/105/007/009/109, MS2840A-005/105/009/109.
- For RBW 31.25 MHz, it is not a Gauss filter but a flat-top characteristic filter. This command can be used only during 0 span.
- RBW 1 Hz, 3 Hz, and 10 Hz cannot be set when Auto Sweep Type Rules is Swept Only. This command cannot be used during 0 span because Auto Sweep Type Rules is fixed to Swept Only.
- This command is disabled during the Spectrum Emission Mask measurement.
- This command is disabled during the Spurious Emission measurement.

In MS2830A, MS2840A RBW Mode: CISPR
- The resolution bandwidth Auto setting is switched off when the resolution bandwidth (RBW) is changed.
- RBW 1 MHz cannot be set when Detector is Quasi-Peak.
- Not available when the Measure function is set to On.
- Not available when the Gate View function is set to On.

Example of Use

To set the RBW to 3 kHz.

```
BAND 3KHZ
```

Related command

This command has the same function as the following commands.

```
[:SENSe]:ACPower:BANDwidth[:RESolution]
[:SENSe]:CHPower:BANDwidth[:RESolution]
[:SENSe]:OBWidth:BANDwidth[:RESolution]
[:SENSe]:BPOWer|:TXPower:BANDwidth[:RESolution]
:CALCulate:BANDwidth|:BWIDth[:RESolution]
:CALCulate:ACPower:BANDwidth[:RESolution]
:CALCulate:CHPower:BANDwidth[:RESolution]
:CALCulate:OBWidth:BANDwidth[:RESolution]
:CALCulate:BPOWer|:TXPower:BANDwidth[:RESolution]
```
:CALCulate:BANDwidth|:BWIDth[:RESolution] <freq>

Resolution Bandwidth

Function

This command sets the resolution bandwidth (RBW). When Couple Time/Freq. Domain is set to Off, each parameter is specified in accordance with the already-specified frequency axis or time axis measurement.

Command

:CALCulate:BANDwidth|:BWIDth[:RESolution] <freq>

Parameter

<table>
<thead>
<tr>
<th>Parameter</th>
<th>Description</th>
</tr>
</thead>
<tbody>
<tr>
<td>&lt;freq&gt;</td>
<td>Resolution bandwidth (RBW)</td>
</tr>
</tbody>
</table>

[MS269xA]

- **Range/Resolution**: 30 Hz to 31.25 MHz
- However, the settable value is 30 Hz to 3 MHz (for 1 to 3 sequences), 50 kHz, 5 MHz, 10 MHz, or 20 MHz, or 31.25 MHz.

[MS2830A], [MS2840A]

- **RBW Mode Normal**
- **Range/Resolution**: 1 Hz to 31.25 MHz
- However, the settable value is 1 Hz to 3 MHz (for 1 to 3 sequences), 500 Hz, 50 kHz, 2 MHz, 5 MHz, 10 MHz, 20 MHz, or 31.25 MHz.

- **RBW Mode CISPR** (Only with MS2830A-016/116, MS2840A-016/116)
  - **Range/Resolution**: The settable value is 200 Hz, 9 kHz, 120 kHz, or 1 MHz.
- **Default**: Value set in CISPR RBW Auto

[MS2850A]

- **Range/Resolution**: 1 Hz to 10 MHz
- However, the settable value is 1 Hz to 3 MHz (for 1 to 3 sequences), 500 Hz, 50 kHz, 2 MHz, 5 MHz, or 10 MHz.

[Common]

- **Suffix code**: HZ, KHZ, KZ, MHZ, MZ, GHZ, GZ
- Hz is used when omitted.
- **Default**: Value set in RBW Auto
  - (Except RBW Mode CISPR)
Details

In MS269xA, MS2830A, MS2840A RBW Mode: Normal
- The resolution bandwidth Auto setting is switched off when the resolution bandwidth (RBW) is changed. For MS2830A, MS2840A RBW 20 MHz or greater is only available for MS2830A-005/105/007/009/109, MS2840A-005/105/009/109.
- For RBW 31.25 MHz, it is not a Gauss filter but a flat-top characteristic filter. This command can be used only during 0 span.
- RBW 1 Hz, 3 Hz, and 10 Hz cannot be set when Auto Sweep Type Rules is Swept Only. This command cannot be used during 0 span because Auto Sweep Type Rules is fixed to Swept Only.
- This command is disabled during the Spectrum Emission Mask measurement.
- This command is disabled during the Spurious Emission measurement.

In MS2830A, MS2840A RBW Mode: CISPR
- The resolution bandwidth Auto setting is switched off when the resolution bandwidth (RBW) is changed.
- RBW 1 MHz cannot be set when Detector is Quasi-Peak.
- Not available when the Measure function is set to On.
- Not available when the Gate View function is set to On.

Example of Use

To set RBW to 3 kHz.
CALC:BAND 3KHZ

Related command

This command has the same function as the following commands.
[:SENSe]:BANDwidth|:BWIDth[:RESolution]
[:SENSe]:ACPower:BANDwidth[:RESolution]
[:SENSe]:CHPower:BANDwidth[:RESolution]
[:SENSe]:OBWidth:BANDwidth[:RESolution]
[:SENSe]:BPOWer|:TXPower:BANDwidth[:RESolution]
:CALCulate:ACPower:BANDwidth[:RESolution]
:CALCulate:CHPower:BANDwidth[:RESolution]
:CALCulate:OBWidth:BANDwidth[:RESolution]
:CALCulate:BPOWer|:TXPower:BANDwidth[:RESolution]
[:SENSe]:BANDwidth|:BWIDth[:RESolution]?
Resolution Bandwidth Query

Function

This command queries the resolution bandwidth (RBW). When Couple Time/Freq. Domain is set to Off, each parameter is specified in accordance with the already-specified frequency axis or time axis measurement.

Query

[:SENSe]:BANDwidth|:BWIDth[:RESolution]?

Response

<freq>

Parameter

<freq> Resolution bandwidth (RBW)

[MS269xA]
Range/Resolution 30 Hz to 31.25 MHz
However, the settable value is 30 Hz to 3 MHz (for 1 to 3 sequences), 50 kHz, 5 MHz, 10 MHz, or 20 MHz, or 31.25 MHz.

[MS2830A], [MS2840A]
RBW Mode Normal
Range/Resolution 1 Hz to 31.25 MHz
However, the settable value is 1 Hz to 3 MHz (for 1 to 3 sequences), 500 Hz, 50 kHz, 2 MHz, 5 MHz, 10 MHz, 20 MHz, or 31.25 MHz.
RBW Mode CISPR (With MS2830A-016/116, MS2840A-016/116)
Range/Resolution The settable value is 200 Hz, 9 kHz, 12 kHz, 20 kHz, or 1 MHz.

[MS2850A]
Range/Resolution 1 Hz to 10 MHz
However, the settable value is 1 Hz to 3 MHz (for 1 to 3 sequences), 500 Hz, 50 kHz, 2 MHz, 5 MHz, or 10 MHz.

[Common]
Suffix code HZ, KHZ, KZ, MHZ, MZ, GHZ, GZ
Hz is used when omitted.

Details

The automatic setting of the resolution bandwidth is OFF, if the resolution bandwidth (RBW) is changed.
Example of Use

To query RBW.
BAND?
> 3000

Related command

This command has the same function as the following commands.
[:SENSe]:ACPower:BANDwidth[:RESolution]?
[:SENSe]:CHPower:BANDwidth[:RESolution]?
[:SENSe]:OBWidth:BANDwidth[:RESolution]?
[:SENSe]:BPOWer|:TXPower:BANDwidth[:RESolution]?
:CALCulate:BANDwidth|:BWIDth[:RESolution]?
:CALCulate:ACPower:BANDwidth[:RESolution]?
:CALCulate:CHPower:BANDwidth[:RESolution]?
:CALCulate:OBWidth:BANDwidth[:RESolution]?
:CALCulate:BPOWer|:TXPower:BANDwidth[:RESolution]?

:CALCulate:BANDwidth|:BWIDth[:RESolution]?

Resolution Bandwidth Query

Function

This command queries the resolution bandwidth (RBW). When Couple Time/Freq. Domain is set to Off, each parameter is specified in accordance with the already-specified frequency axis or time axis measurement.

Query

:CALCulate:BANDwidth|:BWIDth[:RESolution]?

Response

<freq>

Parameter

<freq> Resolution bandwidth (RBW)

[MS269xA]

Range/Resolution 30 Hz to 31.25 MHz
However, the settable value is 30 Hz to 3 MHz (for 1 to 3 sequences), 50 kHz, 5 MHz, 10 MHz, or 20 MHz, or 31.25 MHz.

[MS2830A], [MS2840A]

RBW Mode Normal
Range/Resolution 1 Hz to 31.25 MHz
However, the settable value is 1 Hz to 3 MHz (for 1 to 3 sequences), 500 Hz, 50 kHz, 2 MHz, 5 MHz,
2.3 RBW/VBW

10 MHz, 20 MHz, or 31.25 MHz.

RBW Mode CISPR (With MS2830A-016/116, MS2840A-016/116)

Range/Resolution  The settable value is 200 Hz, 9 kHz, 120 kHz, or 1 MHz.

[MS2850A]

Range/Resolution  1 Hz to 10 MHz

However, the settable value is 1 Hz to 3 MHz (for 1 to 3 sequences), 500 Hz, 50 kHz, 2 MHz, 5 MHz, or 10 MHz.

[Common]

Suffix code  HZ, KHZ, KZ, MHZ, MZ, GHZ, GZ

Hz is used when omitted.

Details

The automatic setting of the resolution bandwidth is OFF, if the resolution bandwidth (RBW) is changed.

Example of Use

To query RBW.

CALC:BAND?

> 3000

Related command

This command has the same function as the following commands.

[:SENSe]:BANDwidth][:BWIDth][:RESolution]?
[:SENSe]:ACPower:BANDwidth[:RESolution]?
[:SENSe]:CHPower:BANDwidth[:RESolution]?
[:SENSe]:OBWidth:BANDwidth[:RESolution]?
[:SENSe]:BPOWer][:TXPower:BANDwidth[:RESolution]?
:CALCulate:ACPower:BANDwidth[:RESolution]?
:CALCulate:CHPower:BANDwidth[:RESolution]?
:CALCulate:OBWidth:BANDwidth[:RESolution]?
:CALCulate:BPOWer][:TXPower:BANDwidth[:RESolution]?
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[:SENSe]:BANDwidth|:BWIDth[:RESolution]:AUTO ON|OFF|1|0
Resolution Bandwidth Auto/Manual

Function

This command enables/disables the resolution bandwidth (RBW) automatic setting function. When Couple Time/Freq. Domain is set to Off, each parameter is specified in accordance with the already-specified frequency axis or time axis measurement.

Command

[:SENSe]:BANDwidth|:BWIDth[:RESolution]:AUTO <switch>

Parameter

MS269xA, MS2830A, MS2840A, MS2850A RBW Mode Normal
<switch>          Automatic resolution bandwidth setting function On/Off state
  0|OFF            Disables the automatic resolution bandwidth function.
  1|ON             Enables the automatic resolution bandwidth setting function (Default).

MS2830A, MS2840A RBW Mode CISPR
(Only with MS2830A-016/116, MS2840A-016/116)
<switch>          Automatic setting (for CISPR RBW)
  0|OFF            Automatic setting is set to Off.
  1|ON             Automatic setting is set to On (Default).

Details

MS269xA, MS2830A, MS2840A RBW Mode Normal
This command is not available during the Spectrum Emission Mask measurement or the Spurious Emission measurement.

MS2830A, MS2840A RBW Mode CISPR
Not available when the Measure function is set to On.
Not available when the Gate View function is set to On.

Example of Use

To enable the automatic resolution bandwidth setting function.
BAND:AUTO ON
Related command

This command has the same function as the following commands.

[:SENSe]:ACPower:BANDwidth[:RESolution]:AUTO
[:SENSe]:CHPower:BANDwidth[:RESolution]:AUTO
[:SENSe]:OBWidth:BANDwidth[:RESolution]:AUTO
:CALCulate:BANDwidth|:BWIDth[:RESolution]:AUTO
:CALCulate:ACPower:BANDwidth[:RESolution]:AUTO
:CALCulate:CHPower:BANDwidth[:RESolution]:AUTO
:CALCulate:OBWidth:BANDwidth[:RESolution]:AUTO
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:CALCulate:BANDwidth[:BWIDth][:RESolution]:AUTO ON|OFF|1|0
Resolution Bandwidth Auto/Manual

Function

This command sets the resolution bandwidth (RBW) automatically. When Couple Time/Freq. Domain is set to Off, each parameter is specified in accordance with the already-specified frequency axis or time axis measurement.

Command

:CALCulate:BANDwidth[:BWIDth][:RESolution]:AUTO <switch>

Parameter

MS269xA, MS2830A, MS2840A, MS2850A RBW Mode Normal

<switch>                   Automatic setting
0|OFF                      Sets the automatic setting to Off.
1|ON                       Sets the automatic setting to On (Default).

MS2830A, MS2840A RBW Mode CISPR

(Only with MS2830A-016/116, MS2840A-016/116)

<switch>                   Automatic setting (for CISPR RBW)
0|OFF                      Automatic setting is set to Off.
1|ON                       Automatic setting is set to On (Default).

Details

MS269xA, MS2830A, MS2840A RBW Mode Normal
This command is not available during the Spectrum Emission Mask measurement or the Spurious Emission measurement.

MS2830A, MS2840A RBW Mode CISPR
Not available when the Measure function is set to On.
Not available when the Gate View function is set to On.

Example of Use

To enable the automatic setting of RBW.
CALC:BAND:AUTO ON

Related command

This command has the same function as the following commands.
[:SENSe]:BANDwidth[:BWIDth][:RESolution]:AUTO
[:SENSe]:ACPower:BANDwidth[:RESolution]:AUTO
[:SENSe]:CHPower:BANDwidth[:RESolution]:AUTO
[:SENSe]:OBWidth:BANDwidth[:RESolution]:AUTO
:CALCulate:ACPower:BANDwidth[:RESolution]:AUTO
:CALCulate:CHPower:BANDwidth[:RESolution]:AUTO
:CALCulate:OBWidth:BANDwidth[:RESolution]:AUTO
[:SENSe]:BANDwidth|:BWIDth[:RESolution]:AUTO?
Resolution Bandwidth Auto/Manual Query

Function
This command queries the On/Off state of the automatic resolution bandwidth setting. When Couple Time/Freq. Domain is set to Off, each parameter is specified in accordance with the already-specified frequency axis or time axis measurement.

Query
[:SENSe]:BANDwidth|:BWIDth[:RESolution]:AUTO?

Response
<switch>

Parameter
MS269xA, MS2830A, MS2840A, MS2850A RBW Mode Normal
<switch> Automatic resolution bandwidth setting function On/Off
0 Automatic resolution bandwidth setting function is disabled.
1 Automatic resolution bandwidth setting function is enabled.

MS2830A, MS2840A RBW Mode CISPR
(Only with MSA2830A-016/116, MS2840A-016/116)
<switch> Automatic setting (for CISPR RBW)
0 Automatic setting is set to Off.
1 Automatic setting is set to On (Default).

Example of Use
To query the On/Off state of the automatic resolution bandwidth setting.
BAND:AUTO?
> 1

Related command
This command has the same function as the following commands.
[:SENSe]:ACPower:BANDwidth[:RESolution]:AUTO?
[:SENSe]:CHPower:BANDwidth[:RESolution]:AUTO?
[:SENSe]:OBWidth:BANDwidth[:RESolution]:AUTO?
:CALCulate:BANDwidth|:BWIDth[:RESolution]:AUTO
:CALCulate:ACPower:BANDwidth[:RESolution]:AUTO?
:CALCulate:CHPower:BANDwidth[:RESolution]:AUTO?
:CALCulate:OBWidth:BANDwidth[:RESolution]:AUTO?
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:CALCulate:BANDwidth[:BWIDth[:RESolution]:AUTO?
Resolution Bandwidth Auto/Manual Query

Function

This command queries the On/Off state of the automatic resolution bandwidth setting. When Couple Time/Freq. Domain is set to Off, each parameter is specified in accordance with the already-specified frequency axis or time axis measurement.

Query

:CALCulate:BANDwidth[:BWIDth[:RESolution]:AUTO?

Response

<switch>

Parameter

MS269xA, MS2830A, MS2840A, MS2850A RBW Mode Normal
<switch> Automatic setting
0  Automatic resolution bandwidth setting function is disabled.
1  Automatic resolution bandwidth setting function is enabled.

MS2830A, MS2840A RBW Mode CISPR
(Only with MS2830A-016/116, MS2840A-016/116)
<switch> Automatic setting (for CISPR RBW)
0  Automatic setting is set to Off.
1  Automatic setting is set to On.

Example of Use

To query the On/Off state of the automatic resolution bandwidth setting.
CALC:BAND:AUTO?
> 1

Related command

This command has the same function as the following commands.
[:SENSe]:BANDwidth[:BWIDth[:RESolution]:AUTO?
[:SENSe]:ACPower:BANDwidth[:RESolution]:AUTO?
[:SENSe]:CHPower:BANDwidth[:RESolution]:AUTO?
[:SENSe]:OBWidth:BANDwidth[:RESolution]:AUTO?
:CALCulate:ACPower:BANDwidth[:RESolution]:AUTO?
:CALCulate:CHPower:BANDwidth[:RESolution]:AUTO?
:CALCulate:OBWidth:BANDwidth[:RESolution]:AUTO?
[:SENSe]:BANDwidth[:BWIDth[:RESolution]:MODE NORMal|CISPr
Resolution Bandwidth Normal/CISPR

Function
This command switches the Resolution Bandwidth (RBW) mode. When Couple Time/Freq. Domain is set to Off, each parameter is specified in accordance with the already-specified frequency axis or time axis measurement.

Command
[:SENSe]:BANDwidth[:BWIDth[:RESolution]:MODE <mode>

Parameter
<mode> Resolution Bandwidth (RBW)
NORMal RBW (in normal cases). This is the Default.
CISPr CISPR RBW

Details
This function is available when MS2830A-016/116, MS2840A-016/116 is installed.
Not available when the Measure function is set to On.
Not available when the Gate View function is set to On.

Example of Use
To switch the mode to CISPR RBW.
BAND:MODE CISP

Related command
This command has the same function as the following commands.
[:SENSe]:ACPower:BANDwidth[:RESolution]:MODE
[:SENSe]:CHPower:BANDwidth[:RESolution]:MODE
[:SENSe]:OBWidth:BANDwidth[:RESolution]:MODE
[:SENSe]:BPOWer|:TXPower:BANDwidth[:RESolution]:MODE
:CALCulate:BANDwidth[:BWIDth[:RESolution]:MODE
:CALCulate:ACPower:BANDwidth[:RESolution]:MODE
:CALCulate:CHPower:BANDwidth[:RESolution]:MODE
:CALCulate:OBWidth:BANDwidth[:RESolution]:MODE
:CALCulate:BPOWer|:TXPower:BANDwidth[:RESolution]:MODE
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:CALCulate:BANDwidth|:BWIDth[:RESolution]:MODE NORMal|CISPr
Resolution Bandwidth Normal/CISPR

Function
This command switches the Resolution Bandwidth (RBW) mode. When Couple Time/Freq. Domain is set to Off, each parameter is specified in accordance with the already-specified frequency axis or time axis measurement.

Command
:CALCulate:BANDwidth|:BWIDth[:RESolution]:MODE <mode>

Parameter
<mode>  Resolution Bandwidth (RBW)
NORMal  RBW (in normal cases). This is the Default.
CISPr  CISPR RBW

Details
This function is available when MS2830A-016/116, MS2840A-016/116 is installed.
Not available when the Measure function is set to On.
Not available when the Gate View function is set to On.

Example of Use
To switch the mode to CISPR RBW.
CALC:BAND:MODE CISPR

Related command
This command has the same function as the following commands.
[:SENSe]:ACPower:BANDwidth[:RESolution]:MODE
[:SENSe]:CHPower:BANDwidth[:RESolution]:MODE
[:SENSe]:OBWidth:BANDwidth[:RESolution]:MODE
[:SENSe]:BPOWer|:TXPower:BANDwidth[:RESolution]:MODE
:CALCulate:BANDwidth|:BWIDth[:RESolution]:MODE
:CALCulate:ACPower:BANDwidth[:RESolution]:MODE
:CALCulate:CHPower:BANDwidth[:RESolution]:MODE
:CALCulate:OBWidth:BANDwidth[:RESolution]:MODE
:CALCulate:BPOWer|:TXPower:BANDwidth[:RESolution]:MODE
[:SENSe]:BANDwidth|:BWIDth[:RESolution]:MODE?
Resolution Bandwidth Normal/CISPR Query

Function

This command queries the Resolution Bandwidth (RBW) mode. When Couple Time/Freq. Domain is set to Off, each parameter is specified in accordance with the already-specified frequency axis or time axis measurement.

Query

[:SENSe]:BANDwidth|:BWIDth[:RESolution]:MODE?

Response

<mode>

Parameter

<mode> Resolution Bandwidth (RBW)
  NORM RBW (in normal cases).
  CISP CISPR RBW

Details

This function is available when MS2830A-016/116, MS2840A-016/116 is installed.
Not available when the Measure function is set to On.
Not available when the Gate View function is set to On.

Example of Use

To query the RBW mode.
BAND:MODE?
> NORM

Related command

This command has the same function as the following commands.
[:SENSe]:ACPowr:BANDwidth[:RESolution]:MODE?
[:SENSe]:CHPower:BANDwidth[:RESolution]:MODE?
[:SENSe]:OBWidth:BANDwidth[:RESolution]:MODE?
[:SENSe]:BPOWe|:TXPower:BANDwidth[:RESolution]:MODE?
:CALCulate:BANDwidth|:BWIDth[:RESolution]:MODE?
:CALCulate:ACPowr:BANDwidth[:RESolution]:MODE?
:CALCulate:CHPower:BANDwidth[:RESolution]:MODE?
:CALCulate:OBWidth:BANDwidth[:RESolution]:MODE?
:CALCulate:BPOWe|:TXPower:BANDwidth[:RESolution]:MODE?
Chapter 2  SCPI Device Message Details

:CALCulate:BANDwidth|:BWIDth[:RESolution]:MODE?
Resolution Bandwidth Normal/CISPR Query

Function
This command queries the Resolution Bandwidth (RBW) mode. When Couple Time/Freq. Domain is set to Off, each parameter is specified in accordance with the already-specified frequency axis or time axis measurement.

Query
:CALCulate:BANDwidth|:BWIDth[:RESolution]:MODE?

Response
<mode>

Parameter
<mode> Resolution Bandwidth (RBW)
NORM RBW (in normal cases)
CISP CISPR RBW

Details
This function is available when MS2830A-016/116, MS2840A-016/116 is installed.
Not available when the Measure function is set to On.
Not available when the Gate View function is set to On.

Example of Use
To query the RBW mode.
CALC:BAND:MODE?
> NORM

Related command
This command has the same function as the following commands.
[:SENSe]:ACPower:BANDwidth[:RESolution]:MODE?
[:SENSe]:CHPower:BANDwidth[:RESolution]:MODE?
[:SENSe]:OBWidth:BANDwidth[:RESolution]:MODE?
[:SENSe]:BPOWer|:TXPower:BANDwidth[:RESolution]:MODE?
:CALCulate:BANDwidth|:BWIDth[:RESolution]:MODE?
:CALCulate:ACPower:BANDwidth[:RESolution]:MODE?
:CALCulate:CHPower:BANDwidth[:RESolution]:MODE?
:CALCulate:OBWidth:BANDwidth[:RESolution]:MODE?
:CALCulate:BPOWer|:TXPower:BANDwidth[:RESolution]:MODE?
[:SENSe]:BANDwidth|BWIDth:VIDeo <freq>

Video Bandwidth

Function

This command sets the video bandwidth (VBW). When Couple Time/Freq. Domain is set to Off, each parameter is specified in accordance with the already-specified frequency axis or time axis measurement.

Command

[:SENSe]:BANDwidth|BWIDth:VIDeo <freq>

Parameter

<table>
<thead>
<tr>
<th>&lt;freq&gt;</th>
<th>Video bandwidth (VBW)</th>
</tr>
</thead>
<tbody>
<tr>
<td>Range/Resolution</td>
<td>1 Hz to 10 MHz (1 to 3 sequences), 5 kHz, OFF</td>
</tr>
<tr>
<td>Suffix code</td>
<td>HZ, KHZ, KZ, MHZ, MZ, GHZ, GZ</td>
</tr>
<tr>
<td></td>
<td>Hz is used when omitted.</td>
</tr>
<tr>
<td>Default</td>
<td>Value set in VBW Auto</td>
</tr>
</tbody>
</table>

Details

The automatic setting of the video bandwidth (VBW) is OFF, if the video bandwidth is changed.
This command is not available during the Spectrum Emission Mask measurement or the Spurious Emission measurement.

Example of Use

To set VBW to 3 kHz.
BAND:VID 3KHZ

Related command

This command has the same function as the following commands.
[:SENSe]:ACPower:BANDwidth:VIDeo
[:SENSe]:CHPower:BANDwidth:VIDeo
[:SENSe]:OBWidth:BANDwidth:VIDeo
[:SENSe]:BANDwidth|:BWIDth:VIDeo?

Video Bandwidth Query

Function

This command queries the video bandwidth (VBW). When Couple Time/Freq. Domain is set to Off, each parameter is specified in accordance with the already-specified frequency axis or time axis measurement.

Query

[:SENSe]:BANDwidth|:BWIDth:VIDeo?

Response

<freq>

Parameter

<freq> Video bandwidth (VBW)

Range/Resolution 1 Hz to 10 MHz (1 to 3 sequences), 5 kHz, OFF

Suffix code None. Value is returned in Hz units.

Details

The automatic setting of the video bandwidth (VBW) is OFF, if the video bandwidth is changed.

Example of Use

To query VBW.

BAND:VID?

> 3000

Related command

This command has the same function as the following commands.

[:SENSe]:ACPower:BANDwidth:VIDeo?

[:SENSe]:CHPower:BANDwidth:VIDeo?

[:SENSe]:OBWidth:BANDwidth:VIDeo?
Video Bandwidth Auto/Manual

Function

This command enables/disables the automatic video bandwidth (VBW) setting function. When Couple Time/Freq. Domain is set to Off, each parameter is specified in accordance with the already-specified frequency axis or time axis measurement.

Command

[:SENSe]:BANDwidth|:BWIDth:VIDeo:AUTO <switch>

Parameter

<switch>  Automatic video bandwidth setting function
0|OFF  Disables the automatic video bandwidth setting function.
1|ON  Enables the automatic video bandwidth setting function (Default).

Details

This command is not available during the Spectrum Emission Mask measurement or the Spurious Emission measurement.

Example of Use

To enable the automatic video bandwidth setting function.
BAND:VID:AUTO ON

Related command

This command has the same function as the following commands.
[:SENSe]:ACPower:BANDwidth:VIDeo
[:SENSe]:CHPower:BANDwidth:VIDeo
[:SENSe]:OBWidth:BANDwidth:VIDeo
[:SENSe]:BANDwidth|:BWIDth:VIDeo:AUTO?

Video Bandwidth Auto/Manual Query

Function

This command queries the On/Off state of the automatic video bandwidth (VBW) setting. When Couple Time/Freq. Domain is set to Off, each parameter is specified in accordance with the already-specified frequency axis or time axis measurement.

Query

[:SENSe]:BANDwidth|:BWIDth:VIDeo:AUTO?

Response

<switch>

Parameter

<switch>  

Automatic video bandwidth setting function
On/Off

0  
Automatic video bandwidth setting function is disabled.

1  
Automatic video bandwidth setting function is enabled.

Example of Use

To query the On/Off state of the automatic video bandwidth setting.

BAND:VID:AUTO?

> 1

Related command

This command has the same function as the following commands.

[:SENSe]:ACPwr:BANDwidth:VIDeo?
[:SENSe]:CHPower:BANDwidth:VIDeo?
[:SENSe]:OBWidth:BANDwidth:VIDeo?
Video Bandwidth Mode

Function

This command sets the video bandwidth (VBW) processing method.

Command

[:SENSe]:BANDwidth|:BWIDth:VIDeo:MODE <method>

Parameter

<method> VBW processing method
VIDeo Normal VBW
POWer Power VBW (Default)

Details

This command is not available in the following cases:
• When Detection is set to RMS.
• During the Spectrum Emission Mask measurement.

Example of Use

To set the video bandwidth processing method when measuring the reference power to Power VBW.
BAND:VID:MODE POW
[:SENSe]:BANDwidth|:BWIDth:VIDeo:MODE?

Video Bandwidth Mode Query

Function

This command queries the video bandwidth (VBW) processing method.

Query

[:SENSe]:BANDwidth|:BWIDth:VIDeo:MODE?

Response

<method>

Parameter

<method>  
VID  Normal VBW  
POW  Power VBW

Details

This command is fixed to Off and cannot be set if Detection is set to the following:
- RMS

Example of Use

To query the video bandwidth processing when measuring the reference power.
BAND:VID:MODE?
> POW
[:SENSe]:FREQency:SPAN:BANDwidth|:BWIDth[:RESolution]:RATio:AUTO
ON|OFF|1|0

Span:RBW Ratio Switch

Function

This command turns On or Off the automatic RBW setting by Span:RBW Ratio.

Command

[:SENSe]:FREQency:SPAN:BANDwidth|:BWIDth[:RESolution]:RATio:AUTO <switch>

Parameter

<switch>  

Turns On or Off the automatic RBW setting by Span:RBW Ratio.

<p>| | | | |</p>
<table>
<thead>
<tr>
<th></th>
<th></th>
<th></th>
<th></th>
</tr>
</thead>
<tbody>
<tr>
<td>0</td>
<td>Turns Off the automatic setting.</td>
<td></td>
<td></td>
</tr>
<tr>
<td>1</td>
<td>Turns On the automatic setting.</td>
<td></td>
<td></td>
</tr>
</tbody>
</table>

Details

- Unavailable when the Measure function is On.
- Unavailable when the RBW mode is CISPR.
- Compares the currently set frequency span divided by the SPAN:RBW ratio and settable RBW, and automatically sets the closest RBW.
- When the automatic setting is set to Off by the Resolution Bandwidth Auto/Manual command, the automatic RBW setting is not performed by this command.
- When span is set to “0”, the automatic RBW setting by Span:RBW Ratio is not performed.

Example of Use

To turn On the automatic RBW setting by Span:RBW Ratio.

FREQ:SPAN:BAND:RAT: AUTO ON
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[:SENSe]:FREQency:SPAN:BWIdth[:RESolution]:RATio:AUTO?
Span:RBW Ratio Switch Query

Function
This command queries the automatic RBW setting by Span:RBW Ratio.

Query
[:SENSe]:FREQency:SPAN:BWIdth[:RESolution]:RATio:AUTO?

Response
<switch>

Parameter
<switch>  Automatic setting
0  The automatic setting is Off.
1  The automatic setting is On.

Example of Use
To query the On/Off status of automatic RBW setting by Span:RBW Ratio.
FREQ:SPAN:BAND:RAT:AUTO?
> 1
[:SENSe]:FREQency:SPAN:BANDwidth|:BWIDth[:RESolution]:RATio
<number>
Span:RBW Ratio

Function
This command specifies the ratio of Span to RBW.

Command
[:SENSe]:FREQency:SPAN:BANDwidth|:BWIDth[:RESolution]:RATio <number>

Parameter
<number> Span:RBW Ratio
  Range  2 to 10000
  Resolution  1
  Default  106

Details
- Unavailable when the Measure function is On.
- Unavailable when the RBW mode is CISPR.
- When this parameter is changed, the automatic RBW setting by Span:RBW Ratio will be enabled automatically.

Example of Use
To set the ratio of Span to RBW to 400.
FREQ:SPAN:BAND:RAT 400
[:SENSe]:FREQency:SPAN:BANDwidth|:BWIDth[:RESolution]:RATio?
Span:RBW Ratio Query

Function

This command queries the ratio of Span to RBW.

Query

[:SENSe]:FREQency:SPAN:BANDwidth|:BWIDth[:RESolution]:RATio?

Response

<number>

Parameter

<number> Span:RBW Ratio

Range 2 to 10000

Example of Use

To query the ratio of Span to RBW.
FREQ:SPAN:BAND:RAT?
> 400
## 2.4 Marker

Table 2.4-1 lists device messages for marker.

<table>
<thead>
<tr>
<th>Function</th>
<th>Device Message</th>
</tr>
</thead>
<tbody>
<tr>
<td>Marker Mode</td>
<td>:CALCulate:MARKer[1]</td>
</tr>
<tr>
<td></td>
<td>:CALCulate:MARKer[1]</td>
</tr>
<tr>
<td>Marker State</td>
<td>:CALCulate:MARKer[1]</td>
</tr>
<tr>
<td></td>
<td>:CALCulate:MARKer[1]</td>
</tr>
<tr>
<td>Active Marker</td>
<td>:CALCulate:MARKer[1]</td>
</tr>
<tr>
<td></td>
<td>:CALCulate:MARKer[1]</td>
</tr>
<tr>
<td>Zone Marker Position</td>
<td>:CALCulate:MARKer[1]</td>
</tr>
<tr>
<td></td>
<td>:CALCulate:MARKer[1]</td>
</tr>
<tr>
<td>Zone Marker Frequency (Time)</td>
<td>:CALCulate:MARKer[1]</td>
</tr>
<tr>
<td></td>
<td>:CALCulate:MARKer[1]</td>
</tr>
<tr>
<td>Zone Marker Relative Frequency (Time)</td>
<td>:CALCulate:MARKer[1]</td>
</tr>
<tr>
<td></td>
<td>:CALCulate:MARKer[1]</td>
</tr>
<tr>
<td>Relative To</td>
<td>:CALCulate:MARKer[1]</td>
</tr>
<tr>
<td></td>
<td>:CALCulate:MARKer[1]</td>
</tr>
<tr>
<td>Marker List</td>
<td>:CALCulate:MARKer:TABLE[:STATE] OFF</td>
</tr>
<tr>
<td></td>
<td>:CALCulate:MARKer:TABLE[:STATE]?</td>
</tr>
<tr>
<td>Spot Line</td>
<td>:CALCulate:MARKer:SLINE[:STATE] OFF</td>
</tr>
<tr>
<td></td>
<td>:CALCulate:MARKer:SLINE[:STATE]?</td>
</tr>
<tr>
<td>Couple Zone</td>
<td>:CALCulate:MARKer:COUPLE:ZONE[:STATE] OFF</td>
</tr>
<tr>
<td></td>
<td>:CALCulate:MARKer:COUPLE:ZONE[:STATE]?</td>
</tr>
<tr>
<td>Power Marker</td>
<td>:CALCulate:PMARKer:MODE ON</td>
</tr>
<tr>
<td></td>
<td>:CALCulate:PMARKer:MODE?</td>
</tr>
<tr>
<td>Zone Marker Width (by Point)</td>
<td>:CALCulate:MARKer[1]</td>
</tr>
<tr>
<td></td>
<td>:CALCulate:MARKer[1]</td>
</tr>
<tr>
<td>Zone Marker Width (by Frequency)</td>
<td>:CALCulate:MARKer[1]</td>
</tr>
<tr>
<td></td>
<td>:CALCulate:MARKer[1]</td>
</tr>
<tr>
<td>Zone Width Type</td>
<td>:CALCulate:MARKer[1]</td>
</tr>
<tr>
<td></td>
<td>:CALCulate:MARKer[1]</td>
</tr>
<tr>
<td>Marker Trace</td>
<td>:CALCulate:MARKer[1]</td>
</tr>
<tr>
<td></td>
<td>:CALCulate:MARKer[1]</td>
</tr>
</tbody>
</table>
## Table 2.4-1  Device messages for marker (Cont’d)

<table>
<thead>
<tr>
<th>Function</th>
<th>Device message</th>
</tr>
</thead>
<tbody>
<tr>
<td>Marker to Reference Level</td>
<td>:CALCulate:MARKer[1]</td>
</tr>
<tr>
<td>Marker Result</td>
<td>:CALCulate:MARKer:RESult INTegration</td>
</tr>
<tr>
<td></td>
<td>:CALCulate:MARKer:RESult?</td>
</tr>
<tr>
<td>Marker Frequency (Time) Query</td>
<td>:CALCulate:MARKer[1]</td>
</tr>
<tr>
<td>Marker Level Query</td>
<td>:CALCulate:MARKer[1]</td>
</tr>
<tr>
<td>Marker Relative Level Query</td>
<td>:CALCulate:MARKer[1]</td>
</tr>
<tr>
<td>Reference Marker Level Query</td>
<td>:CALCulate:MARKer:REFerence:X?</td>
</tr>
<tr>
<td>Power Marker Result Query</td>
<td>:CALCulate:PMARker[1]</td>
</tr>
<tr>
<td></td>
<td>:CALCulate:PMARker:DELTA:Y?</td>
</tr>
<tr>
<td>All Marker Off</td>
<td>:CALCulate:MARKer:AOFF</td>
</tr>
<tr>
<td>Marker Readout Query</td>
<td>:CALCulate:MARKer:READout?</td>
</tr>
<tr>
<td>Frequency Counter Gate Time</td>
<td>:CALCulate:MARKer[1]</td>
</tr>
<tr>
<td></td>
<td>:CALCulate:MARKer[1]</td>
</tr>
<tr>
<td>Frequency Counter State</td>
<td>:CALCulate:MARKer[1]</td>
</tr>
<tr>
<td></td>
<td>:CALCulate:MARKer[1]</td>
</tr>
<tr>
<td>Frequency Counter</td>
<td>:CALCulate:MARKer[1]</td>
</tr>
<tr>
<td>Marker Tracking</td>
<td>:CALCulate:MARKer:TRCKing[:STATe] OFF</td>
</tr>
<tr>
<td></td>
<td>:CALCulate:MARKer:TRCKing[:STATe]?</td>
</tr>
<tr>
<td>N dB Bandwidth On/Off</td>
<td>:CALCulate:BANDwidth</td>
</tr>
<tr>
<td></td>
<td>:CALCulate:BANDwidth</td>
</tr>
<tr>
<td>N dB Value</td>
<td>:CALCulate:BANDwidth</td>
</tr>
<tr>
<td></td>
<td>:CALCulate:BANDwidth</td>
</tr>
<tr>
<td>N dB Bandwidth Value</td>
<td>:CALCulate:BANDwidth</td>
</tr>
</tbody>
</table>
2.4 Marker

:CALCulate:MARKer[1]|2|3|4|5|6|7|8|9|10:MODE
NORMal|POSition|DELTa|FIXed|OFF

Marker Mode

Function

This command sets the marker mode.

Command

:CALCulate:MARKer[n]:MODE <mode>

Parameter

<n> Marker number
1 Marker 1
2 Marker 2
3 Marker 3
4 Marker 4
5 Marker 5
6 Marker 6
7 Marker 7
8 Marker 8
9 Marker 9
10 Marker 10
When omitted: Marker 1

<mode> Marker mode
NORMal|POSition Normal marker
DELTa Delta marker
FIXed Fixed marker
OFF Not displaying any marker
Default Off (Normal only in Marker1)

Details

This command is not available during Spurious Emission measurement and when Displayed Segment Mode is Auto.
Not available during Spectrum Emission Mask measurement.
When the N dB Bandwidth measurement function is set to On, the currently active marker is set to normal.

Example of Use

To set the mode of the marker 1 to delta marker.
CALC:MARK:MODE DELT
Related command

This command has the same function as the following commands.

:CALCulate:ACPower:MARKer[1]|2|3|4|5|6|7|8|9|10:MODE
:CALCulate:CHPower:MARKer[1]|2|3|4|5|6|7|8|9|10:MODE
:CALCulate:OBWidth:MARKer[1]|2|3|4|5|6|7|8|9|10:MODE
:CALCulate:BPOWer|:TXPower:MARKer[1]|2|3|4|5|6|7|8|9|10:MODE
:CALCulate:MARKer[1]|2|3|4|5|6|7|8|9|10:MODE?

Marker Mode Query

Function

This command queries the marker mode.

Query

:CALCulate:MARKer[n]:MODE?

Response

<mode>

Parameter

<n> Marker number
1 Marker 1
2 Marker 2
3 Marker 3
4 Marker 4
5 Marker 5
6 Marker 6
7 Marker 7
8 Marker 8
9 Marker 9
10 Marker 10

When omitted: Marker 1

<mode> Marker mode
NORM Normal marker
DELT Delta marker
FIX Fixed marker
OFF Not displaying any marker

Example of Use

To query the mode of the marker.
CALC:MARK:MODE?
> DELT

Related command

This command has the same function as the following commands.
:CALCulate:ACPower:MARKer[1]|2|3|4|5|6|7|8|9|10:MODE?
:CALCulate:CHPower:MARKer[1]|2|3|4|5|6|7|8|9|10:MODE?
:CALCulate:OBWidth:MARKer[1]|2|3|4|5|6|7|8|9|10:MODE?
:CALCulate:BFOWer|:TXPower:MARKer[1]|2|3|4|5|6|7|8|9|10:MODE?
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**:CALCulate:MARKer[1]|2|3|4|5|6|7|8|9|10:STATe OFF|ON|0|1**

**Marker State**

**Function**

This command sets the marker to On/Off.

**Command**

`:CALCulate:MARKer[n]:STATe <switch>`

**Parameter**

<table>
<thead>
<tr>
<th><code>&lt;n&gt;</code></th>
<th>Marker number</th>
</tr>
</thead>
<tbody>
<tr>
<td>1</td>
<td>Marker 1</td>
</tr>
<tr>
<td>2</td>
<td>Marker 2</td>
</tr>
<tr>
<td>3</td>
<td>Marker 3</td>
</tr>
<tr>
<td>4</td>
<td>Marker 4</td>
</tr>
<tr>
<td>5</td>
<td>Marker 5</td>
</tr>
<tr>
<td>6</td>
<td>Marker 6</td>
</tr>
<tr>
<td>7</td>
<td>Marker 7</td>
</tr>
<tr>
<td>8</td>
<td>Marker 8</td>
</tr>
<tr>
<td>9</td>
<td>Marker 9</td>
</tr>
<tr>
<td>10</td>
<td>Marker 10</td>
</tr>
</tbody>
</table>

When omitted: Marker 1

<table>
<thead>
<tr>
<th><code>&lt;switch&gt;</code></th>
<th>Marker mode</th>
</tr>
</thead>
<tbody>
<tr>
<td>ON</td>
<td>1</td>
</tr>
<tr>
<td>OFF</td>
<td>0</td>
</tr>
</tbody>
</table>

**Details**

This command is not available during Spurious Emission measurement and when Displayed Segment Mode is Auto.

Not available during Spectrum Emission Mask measurement.

**Example of Use**

To set the marker 2 to Normal.

```
CALC:MARK2:STAT ON
```
:CALCulate:MARKer[1]|2|3|4|5|6|7|8|9|10:STATe?
Marker State Query

Function

This command queries the On/Off state of the marker.

Query

:CALCulate:MARKer[n]:STATe?

Response

<switch>

Parameter

<n>          Marker number
1            Marker 1
2            Marker 2
3            Marker 3
4            Marker 4
5            Marker 5
6            Marker 6
7            Marker 7
8            Marker 8
9            Marker 9
10           Marker 10

When omitted: Marker 1

<switch>     Marker mode
1            Marker mode is set to other than Off.
0            Marker mode is set to Off.

Example of Use

To query the mode of Marker 2.
CALC:MARK2:STAT?
> 1
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:CALCulate:MARKer[1]|2|3|4|5|6|7|8|9|10:ACTive OFF|ON|0|1

Active Marker

Function

This command specifies the active marker.

Command

:CALCulate:MARKer[n]:ACTive <switch>

Parameter

<n>  Marker number
1    Marker 1
2    Marker 2
3    Marker 3
4    Marker 4
5    Marker 5
6    Marker 6
7    Marker 7
8    Marker 8
9    Marker 9
10   Marker 10

When omitted:  Marker 1

<switch>  Active marker
ON|1  Sets the marker n to On.
OFF|0  Sets the marker n to Off.

Details

Multiple markers can not be set to active.
This command is not available during Spurious Emission measurement and when Displayed Segment Mode is Auto.
Not available during Spectrum Emission Mask measurement.

Example of Use

To set the marker 1 to active.
CALC:MARK:ACT ON
:CALCulate:MARKer[1]|2|3|4|5|6|7|8|9|10:ACTive?

Active Marker Query

Function

This command queries the active marker.

Query

:CALCulate:MARKer[n]:ACTive?

Response

<switch>

Parameter

<n> Marker number
1 Marker 1
2 Marker 2
3 Marker 3
4 Marker 4
5 Marker 5
6 Marker 6
7 Marker 7
8 Marker 8
9 Marker 9
10 Marker 10
When omitted: Marker 1

<switch> Active marker
1 Active marker On.
0 Active marker Off.

Example of Use

To query the active marker.
CALC:MARK:ACT?
> 1
:CALCulate:MARKer[1]|2|3|4|5|6|7|8|9|10:X:POSition <integer>

Zone Marker Position

Function

This command moves the center of the zone marker to the specified position.

Command

:CALCulate:MARKer[n]:X:POSition <integer>

Parameter

<n>  Marker number

1  Marker 1
2  Marker 2
3  Marker 3
4  Marker 4
5  Marker 5
6  Marker 6
7  Marker 7
8  Marker 8
9  Marker 9
10  Marker 10

When omitted: Marker 1

<integer>  Number of display points from the left edge of the screen

Range  0 to 10, 20, 40, 50, 100, 200, 250, 400, 500, 1000, 2000, 5000, 10000, 30000 (MS269xA, MS2830A, MS2840A Only)

Details

This command is not available during Spurious Emission measurement and when Displayed Segment Mode is Auto.
Not available during Spectrum Emission Mask measurement.

Example of Use

To move the center of the zone marker to the 5 hundredth point from the left edge of the screen.
CALC:MARK:X:POS 500
2.4 Marker

Related command

This command has the same function as the following commands.

:CALCulate:OBWidth:MARKer[1]|2|3|4|5|6|7|8|9|10:X:POsition
:CALCulate:SPURious:MARKer[1]|2|3|4|5|6|7|8|9|10:X:POsition

:CALCulate:MARKer[1]|2|3|4|5|6|7|8|9|10:X:POsition?

Zone Marker Position Query

Function

This command queries the center position of the zone marker.

Query

:CALCulate:MARKer[n]:X:POsition?

Response

<integer>

Parameter

<n>   Marker number
1     Marker 1
2     Marker 2
3     Marker 3
4     Marker 4
5     Marker 5
6     Marker 6
7     Marker 7
8     Marker 8
9     Marker 9
10    Marker 10

When omitted: Marker 1

<integer> Number of display points from the left edge of the screen

Range  0 to 10, 20, 40, 50, 100, 200, 250, 400, 500, 1000, 2000, 5000, 10000, 30000 (MS269xA, MS2830A, MS2840A Only)
Example of Use

To query the center of the zone marker.
CALC:MARK:X:POS?
> 500

Related command

This command has the same function as the following commands.
:CALCulate:OBWidth:MARKer[1]|2|3|4|5|6|7|8|9|10:X:POSition?
:CALCulate:MARKer[1]|2|3|4|5|6|7|8|9|10:X <freq>|<time>
Zone Marker Frequency (Time)

Function

This command moves the center of the zone marker to the specified frequency or time.

Command

:CALCulate:MARKer[n]:X <freq>|<time>

Parameter

<n>  Marker number
1    Marker 1
2    Marker 2
3    Marker 3
4    Marker 4
5    Marker 5
6    Marker 6
7    Marker 7
8    Marker 8
9    Marker 9
10   Marker 10
When omitted: Marker 1

<freq>  Center frequency of zone marker

Range

[MS269xA]  –100 MHz to 6.05 GHz (MS2690A)
           –100 MHz to 13.6 GHz (MS2691A)
           –100 MHz to 26.6 GHz (MS2692A)
[MS2830A]  –100 MHz to 3.7 GHz (Option 040)
           –100 MHz to 6.1 GHz (Option 041)
           –100 MHz to 13.6 GHz (Option 043)
           –100 MHz to 26.6 GHz (Option 044)
           –100 MHz to 43.1 GHz (Option 045)
[MS2840A]  –100 MHz to 3.7 GHz (Option 040)
           –100 MHz to 6.1 GHz (Option 041)
           –100 MHz to 26.6 GHz (Option 044)
           –100 MHz to 44.6 GHz (Option 046)
[MS2850A]  –100 MHz to 32.1 GHz (Option 047)
           –100 MHz to 44.6 GHz (Option 046)

Resolution  0.01 Hz
Suffix code  HZ, KHZ, KZ, MHZ, MZ, GHZ, GZ
             Hz is used when omitted.
Default  X-axis center
<time>  Center time of zone marker

Range  –1000 to 1000 s
Resolution 1 ns
Suffix code NS, US, MS, S
S is used when omitted.

Details

This command is not available during Spurious Emission measurement and when Displayed Segment Mode is Auto.
Not available during Spectrum Emission Mask measurement.
When Internal Signal Generator Control On/Off is On, the center frequency range of zone marker depends on the frequency range of Signal Generator.

Example of Use

To move the center frequency of the zone marker to 100 MHz.
CALC:MARK:X 100MHZ

Related command

This command has the same function as the following commands.

:CALCulate:MARKer[1]|2|3|4|5|6|7|8|9|10:X?
Zone Marker Frequency (Time) Query

Function

This command queries the center of the zone marker.

Query

:CALCulate:MARKer[n]:X?

Response

<freq>
<time>

Parameter

<n> Marker number
1 Marker 1
2 Marker 2
3 Marker 3
4 Marker 4
5 Marker 5
6 Marker 6
7 Marker 7
8 Marker 8
2.4 Marker

Marker 9
Marker 10
When omitted: Marker 1

Center frequency of zone marker

Range

**[MS269xA]**
-100 MHz to 6.05 GHz (MS2690A)
-100 MHz to 13.6 GHz (MS2691A)
-100 MHz to 26.6 GHz (MS2692A)

**[MS2830A]**
-100 MHz to 3.7 GHz (Option 040)
-100 MHz to 6.1 GHz (Option 041)
-100 MHz to 13.6 GHz (Option 043)
-100 MHz to 26.6 GHz (Option 044)
-100 MHz to 43.1 GHz (Option 045)

**[MS2840A]**
-100 MHz to 3.7 GHz (Option 040)
-100 MHz to 6.1 GHz (Option 041)
-100 MHz to 26.6 GHz (Option 044)
-100 MHz to 44.6 GHz (Option 046)

**[MS2850A]**
-100 MHz to 32.1 GHz (Option 047)
-100 MHz to 44.6 GHz (Option 046)

Resolution 0.01 Hz
Suffix code None
Default X-axis center

Center time of zone marker

Range -1000 to 1000 s
Resolution 0.01 s
Suffix code None

Example of Use

To query the center of the zone marker of Marker 1.

```
CALC:MARK:X?
> 100000000.00
```

Related command

This command has the same function as the following commands.

```
:CALCulate:ACPower:MARKer[1]|2|3|4|5|6|7|8|9|10:X?
:CALCulate:CHPower:MARKer[1]|2|3|4|5|6|7|8|9|10:X?
:CALCulate:OBWidth:MARKer[1]|2|3|4|5|6|7|8|9|10:X?
:CALCulate:BPOWer|:TXPower:MARKer[1]|2|3|4|5|6|7|8|9|10:X?
```
:CALCulate:MARKer[n]:X:DELTa <freq>|<time>

Zone Marker Relative Frequency (Time)

Function

This command moves the center of the zone marker to the frequency (time), specified by relative value.

Command

:CALCulate:MARKer[n]:X:DELTa <freq>|<time>

Parameter

<n>

Marker Number

1  Specifies marker 1
2  Specifies marker 2
3  Specifies marker 3
4  Specifies marker 4
5  Specifies marker 5
6  Specifies marker 6
7  Specifies marker 7
8  Specifies marker 8
9  Specifies marker 9
10 Specifies marker 10

When omitted: Specifies marker 1

<freq>

Relative center frequency of zone maker

Range Absolute frequency range – Reference marker center frequency

Resolution 0.01 Hz

Suffix code HZ, KHZ, KZ, MHZ, MZ, GHZ, GZ

Hz is used when omitted.

Default 0 Hz

<time>

Relative center time of zone marker

Range Absolute time range – Reference marker center time

Resolution 1 ns

Suffix code NS, US, MS, S

S is used when the suffix code is omitted.

Default 0 s

Details

This command is not available during Spurious Emission measurement and when Displayed Segment Mode is Auto.

Not available during Spectrum Emission Mask measurement.

Not available when Marker Mode is set other than Delta.
Example of Use

When Frequency Span is 0 Hz, and Active Marker is Marker 2. To move the center of Marker 1 zone marker to +100 MHz of Marker 2 (reference marker).

```
CALC:MARK1:REF 2
CALC:MARK1:X:DELT 100MHZ
```

When Frequency Span is 0 Hz, and Active Marker is Maker 2.
To move the center of Marker 1 zone marker to 15 ms of Marker 2 (reference marker).

```
CALC:MARK1:REF 2
CALC:MARK:X:DELT 1,15MS
```
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**:CALCulate:MARKer[1]|2|3|4|5|6|7|8|9|10:X:DELTa?**

Zone Marker Relative Frequency (Time) Query

**Function**

This command queries the center of zone marker in relative value.

**Query**

**:CALCulate:MARKer[n]:X:DELTa?**

**Response**

```plaintext
<freq>
<time>
```

**Parameter**

```plaintext
<n> Marker Number
1 Specifies marker 1
2 Specifies marker 2
3 Specifies marker 3
4 Specifies marker 4
5 Specifies marker 5
6 Specifies marker 6
7 Specifies marker 7
8 Specifies marker 8
9 Specifies marker 9
10 Specifies marker 10
When omitted: Specifies marker 1
```

```plaintext
<freq> Center frequency of zone marker
Range Absolute frequency range – Reference marker center frequency
Resolution 0.01 Hz
Suffix code None
```

```plaintext
<time> Center time of zone marker
Range Absolute time range – Reference marker center time
Resolution 1 ns
Suffix code None
```

**Example of Use**

When Frequency Span is 0 Hz, and Active Marker is Marker 2.
To move the center of Marker 1 zone marker to +100 MHz of Marker 2 (reference marker).
```
CALC:MARK1:REF 2
CALC:MARK:X:DELT 1,100MHZ
```
2.4 Marker

To query the center of Marker 1 zone marker in relative value.
CALC:MARK:X:DELT?
> 100000000.00

When Frequency Span is 0 Hz, and Active Marker is Marker 2.
To move the center of Marker 1 zone marker to 15 ms of Marker 2 (reference marker).
CALC:MARK1:REF 2
CALC:MARK:X:DELT 1,15MS

To query the center of Marker 1 zone marker in relative value.
CALC:MARK:X:DELT? 1
> 0.015000000
Chapter 2  SCPI Device Message Details

:CALCulate:MARKer[n]:REFerence <integer>

Relative To

Function

This command sets the reference marker when the marker mode is set to Delta.

Command

:CALCulate:MARKer[n]:REFerence <integer>

Parameter

<n>       Marker number to set
1         Marker 1
2         Marker 2
3         Marker 3
4         Marker 4
5         Marker 5
6         Marker 6
7         Marker 7
8         Marker 8
9         Marker 9
10        Marker 10

When omitted: Marker 1

<integer> Marker number for reference
1         Marker 1
2         Marker 2
3         Marker 3
4         Marker 4
5         Marker 5
6         Marker 6
7         Marker 7
8         Marker 8
9         Marker 9
10        Marker 10

When omitted: Active marker

Details

The setting target marker cannot be set to the reference marker.
This command is not available in the following cases:
• During the Spurious Emission measurement AND when Displayed Segment Mode is set to Auto.
• During the Spectrum Emission Mask measurement.
Example of Use

To set the reference marker for Marker 2 to 4.
CALC:MARK2:REF 4

Related Commands

This command has the same function as the following commands.
:CALCulate:ACPower:MARKer[1]|2|3|4|5|6|7|8|9|10:REFerence
:CALCulate:CHPower:MARKer[1]|2|3|4|5|6|7|8|9|10:REFerence
:CALCulate:OBWidth:MARKer[1]|2|3|4|5|6|7|8|9|10:REFerence

:CALCulate:MARKer[1]|2|3|4|5|6|7|8|9|10:REFerence?

Relative To Query

Function

This command queries the reference marker when the marker mode is set to Delta.

Query

:CALCulate:MARKer[n]:REferenc?

Response

<integer>

Parameter

<n>  Marker number to set
  1    Marker 1
  2    Marker 2
  3    Marker 3
  4    Marker 4
  5    Marker 5
  6    Marker 6
  7    Marker 7
  8    Marker 8
  9    Marker 9
  10   Marker 10
When omitted:  Marker 1
Marker number for reference
1 Marker 1
2 Marker 2
3 Marker 3
4 Marker 4
5 Marker 5
6 Marker 6
7 Marker 7
8 Marker 8
9 Marker 9
10 Marker 10

Example of Use
To query the reference marker for the marker 2.
CALC:MARK2:REF?
> 4

Related Command
This command has the same function as the following commands.
:CALCulate:ACPower:MARKer[1]|2|3|4|5|6|7|8|9|10:REFERENCE?
:CALCulate:CHPower:MARKer[1]|2|3|4|5|6|7|8|9|10:REFERENCE?
:CALCulate:OBWidth:MARKer[1]|2|3|4|5|6|7|8|9|10:REFERENCE?
:CALCulate:BPOWer|:TXPower:MARKer[1]|2|3|4|5|6|7|8|9|10:REFERENCE?
:CALCulate:MARKer:TABLE[:STATe] OFF|ON|0|1

Marker List

Function

This command selects the marker list display On/Off.

Command

:CALCulate:MARKer:TABLE[:STATe] <switch>

Parameter

<table>
<thead>
<tr>
<th>&lt;switch&gt;</th>
<th>Marker list display On/Off</th>
</tr>
</thead>
<tbody>
<tr>
<td>ON</td>
<td>1</td>
</tr>
<tr>
<td>OFF</td>
<td>0</td>
</tr>
</tbody>
</table>

Details

This command is not available when the Measure function is set to On and during the Spurious Emission measurement.

Example of Use

To the marker list display to On.
CALC:MARK:TABL ON

:CALCulate:MARKer:TABLE[:STATe]?

Marker List Query

Function

This command queries the On/Off state of the marker list display setting.

Query

:CALCulate:MARKer:TABLE[:STATe]?

Response

<switch>

Parameter

<table>
<thead>
<tr>
<th>&lt;switch&gt;</th>
<th>Marker list display On/Off</th>
</tr>
</thead>
<tbody>
<tr>
<td>1</td>
<td>Marker list is set to On.</td>
</tr>
<tr>
<td>0</td>
<td>Marker list is set to Off.</td>
</tr>
</tbody>
</table>

Example of Use

To query the On/Off state of the marker list display setting.
CALC:MARK:TABL?
> 1
:CALCulate:MARKer:SLINe[:STATe] OFF|ON|0|1

Spot Line

Function

This command selects the marker line display in spot marker On/Off.

Command

:CALCulate:MARKer:SLINe[:STATe] <switch>

Parameter

<table>
<thead>
<tr>
<th>&lt;switch&gt;</th>
<th>Marker list display On/Off</th>
</tr>
</thead>
<tbody>
<tr>
<td>ON</td>
<td>1</td>
</tr>
<tr>
<td>OFF</td>
<td>0</td>
</tr>
</tbody>
</table>

Details

This command is not available during Spurious Emission measurement and when Displayed Segment Mode is Auto.
Not available during Spectrum Emission Mask measurement.

Example of Use

To display the marker line.
CALC:MARK:SLIN ON
:CALCulate:MARKer:SLINe[:STATe]?

Spot Line Query

Function

This command queries the On/Off state of the marker line display setting in spot marker.

Query

:CALCulate:MARKer:SLINe[:STATe]?

Response

<switch>

Parameter

<switch> Marker line display On/Off
1 Displays the marker line.
0 Hides the marker line.

Example of Use

To query the On/Off state of the marker line display setting.
CALC:MARK:SLIN?
> 1

:CALCulate:MARKer:COUPle:ZONE[:STATe] OFF|ON|0|1

Couple Zone

Function

This command sets Zone Width shared setting On/Off.

Command

:CALCulate:MARKer:COUPle:ZONE[:STATe] <switch>

Parameter

<switch> Zone Width shared setting On/Off
ON|1 Sets the shared setting to On.
OFF|0 Sets the shared setting to Off.

Details

Shares the Zone Width setting of each marker when set to On.
Not available during Time Domain.
This command is not available during the time domain measurement.
Not available during Spectrum Emission Mask measurement.

Example of Use

To set the Zone Width shared setting to On.
CALC:MARK:COUP:ZONE ON
Chapter 2  SCPI Device Message Details

:CALCulate:MARKer:COUPle:ZONE[:STATE]?
Couple Zone Query

Function

This command queries the On/Off state of the Zone Width shared setting.

Query

:CALCulate:MARKer:COUPle:ZONE[:STATE]?

Response

<switch>

Parameter

<switch>  Zone Width shared setting On/Off
  1        On
  0        Off

Details

Shares the Zone Width setting of each marker when set to On.

Example of Use

To query the On/Off state of the Zone Width shared setting.
CALC:MARK:COUP:ZONE?
> 1
:CALCulate:PMARker:MODE ON|OFF|1|0

Power Marker

Function
This command switches the display mode of the marker value.

Command
:CALCulate:PMARker:MODE <switch>

Parameter

<table>
<thead>
<tr>
<th>&lt;switch&gt;</th>
<th>Display mode of the marker value</th>
</tr>
</thead>
<tbody>
<tr>
<td>ON</td>
<td>1</td>
</tr>
<tr>
<td>OFF</td>
<td>0</td>
</tr>
</tbody>
</table>

Details
This command is not available during Spurious Emission measurement and when Displayed Segment Mode is Auto.
Not available during Spectrum Emission Mask measurement.

Example of Use
To the display mode of the marker value to Integration.
CALC:PMAR:MODE ON

:CALCulate:PMARker:MODE?

Power Marker Query

Function
This command queries the display mode of the marker value.

Query
:CALCulate:PMARker:MODE?

Response

<table>
<thead>
<tr>
<th>&lt;switch&gt;</th>
</tr>
</thead>
</table>

Example of Use
To query the display mode of the marker value.
CALC:PMAR:MODE?
> 1
Chapter 2  SCPI Device Message Details

:CALCulate:MARKer[1]|2|3|4|5|6|7|8|9|10:WIDTh:DIVision <division>

Zone Marker Width

Function

This command sets the width of the zone marker by the number of screen segments.

Command

:CALCulate:MARKer[n]:WIDTh:DIVision <division>

Parameter

<n>  Marker number
     1  Marker 1
     2  Marker 2
     3  Marker 3
     4  Marker 4
     5  Marker 5
     6  Marker 6
     7  Marker 7
     8  Marker 8
     9  Marker 9
    10  Marker 10

When omitted:  Marker 1

<division>  Zone marker width
            0  Spot
            0.5  0.5 div
            1  1 div (Default)
            2  2 div
            3  3 div
            4  4 div
            5  5 div
            6  6 div
            7  7 div
            8  8 div
            9  9 div
           10  10 div

Details

This command is not available during Spurious Emission measurement and when Displayed Segment Mode is Auto.
Not available during Spectrum Emission Mask measurement.

Example of Use

To set the zone marker width to 5 div.
CALC:MARK:WIDT:DIV 5
:CALCulate:MARKer[n]:WIDTh:DIVision?
Zone Marker Width Query

Function

This command queries the zone marker width by the number of screen segments.

Query

:CALCulate:MARKer[n]:WIDTh:DIVision?

Response

<division>

Parameter

<n>  Marker number
1    Marker 1
2    Marker 2
3    Marker 3
4    Marker 4
5    Marker 5
6    Marker 6
7    Marker 7
8    Marker 8
9    Marker 9
10   Marker 10

When omitted: Marker 1

<division>  Zone marker width
0    Spot
0.5  0.5 div
1    1 div (Default)
2    2 div
3    3 div
4    4 div
5    5 div
6    6 div
7    7 div
8    8 div
9    9 div
10   10 div

Details

−999.0 is returned, if the zone marker width is out of range.
Example of Use

To query the zone marker width by the number of screen segments.

CALC:MARK:WIDT:DIV?
> 5

:CALCulate:MARKer[n]:WIDTh:POINt <integer>
Zone Marker Width (by Point)

Function

This command sets the zone marker width by the point.

Command

:CALCulate:MARKer[n]:WIDTh:POINt <integer>

Parameter

<n> Marker number
1 Marker 1
2 Marker 2
3 Marker 3
4 Marker 4
5 Marker 5
6 Marker 6
7 Marker 7
8 Marker 8
9 Marker 9
10 Marker 10

When omitted: Marker 1

<integer> Zone marker width
Range 1 to 11, 21, 41, 51, 101, 201, 251, 401, 501, 1001, 2001, 5001, 10001, 30001 (MS269xA, MS2830A, MS2840A Only) points (number of trace points)

Details

This command is not available during Spurious Emission measurement and when Displayed Segment Mode is Auto.
Not available during Spectrum Emission Mask measurement.

Example of Use

To set the zone marker width of Marker 1 to 501 points.
CALC:MARK:WIDT:POIN 501
:CALCulate:MARKer[1][2][3][4][5][6][7][8][9][10]:WIDTH:POINt?

Zone Marker Width (by Point) Query

Function

This command queries the zone marker width by the point.

Query

:CALCulate:MARKer[n]:WIDTH:POINt?

Response

<integer>

Parameter

<n> Marker number
1 Marker 1
2 Marker 2
3 Marker 3
4 Marker 4
5 Marker 5
6 Marker 6
7 Marker 7
8 Marker 8
9 Marker 9
10 Marker 10

When omitted: Marker 1
<integer> Zone marker width
Range 1 to 11, 21, 41, 51, 101, 201, 251, 401, 501, 1001, 2001, 5001, 10001, 30001 (MS269xA, MS2830A, MS2840A Only) points (number of trace points)

Details

This command is not available during the Spurious Emission measurement and when Displayed Segment Mode is set to Auto.

Example of Use

To query the zone marker width by the point.
CALC:MARK:WIDT:POIN?
> 501
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:CALCulate:MARKer[1]|2|3|4|5|6|7|8|9|10:WIDTh <freq>
Zone Marker Width (by Frequency)

Function

This command sets the zone marker width by the frequency.

Command

:CALCulate:MARKer[n]:WIDTh <freq>

Parameter

<n>  Marker number
1    Marker 1
2    Marker 2
3    Marker 3
4    Marker 4
5    Marker 5
6    Marker 6
7    Marker 7
8    Marker 8
9    Marker 9
10   Marker 10
When omitted: Marker 1

<freq>  Frequency of zone marker
Range   0.01 Hz to the specified span width
Resolution  0.01 Hz
Suffix code  HZ, KHZ, KZ, MHZ, MZ, GHZ, GZ
Hz is used when omitted.
Default   Value of 1 Division

Details

This command is not available during Spurious Emission measurement and when Displayed Segment Mode is Auto.
Not available during Spectrum Emission Mask measurement.

Example of Use

To set the zone marker width of Marker 1 to 1 MHz.
CALC:MARK:WIDT 1MHZ
:CALCulate:MARKer[1]|2|3|4|5|6|7|8|9|10:WIDTh?
Zone Marker Width (by Frequency) Query

Function

This command queries the zone marker width.

Query

:CALCulate:MARKer[n]:WIDTh?

Response

<freq>

Parameter

<n>  Marker number
1    Marker 1
2    Marker 2
3    Marker 3
4    Marker 4
5    Marker 5
6    Marker 6
7    Marker 7
8    Marker 8
9    Marker 9
10   Marker 10

When omitted: Marker 1

<freq>  Frequency of zone marker

Range  0.01 Hz to the specified span width
Resolution  0.01 Hz
Suffix code  None

Example of Use

To query the zone marker width of Marker 1.
CALC:MARK:WIDT?
> 1000000.00
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:CALCulate:MARKer[1]|2|3|4|5|6|7|8|9|10:WIDTh:TYPE ZONE|SPOT
Zone Width Type

Function

This command sets the zone type of the marker.

Command

:CALCulate:MARKer[n]:WIDTh:TYPE <zone_type>

Parameter

<n>        Marker number
           1        Marker 1
           2        Marker 2
           3        Marker 3
           4        Marker 4
           5        Marker 5
           6        Marker 6
           7        Marker 7
           8        Marker 8
           9        Marker 9
           10       Marker 10
When omitted: Marker 1
<zone_type> Zone type of Marker
ZONE       Zone marker
SPOT       Spot marker

Details

This command is available when Marker Result is Peak.
When Marker Result is set to Integration or Density, Zone type is fixed to Zone, Spot cannot be selected.
This command is not available in the following cases:
• During the time domain measurement.
• During Spurious Emission measurement when Displayed Segment Mode is Auto.
• During Spectrum Emission Mask measurement.

Example of Use

To set the zone type of the marker in the marker 1 to zone marker.
CALC:MARK:WIDT:TYPE ZONE
:CALCulate:MARKer[1]|2|3|4|5|6|7|8|9|10:WIDTH:TYPE?
Zone Width Type Query

Function

This command queries the zone type of the marker.

Query

:CALCulate:MARKer[n]:WIDTH:TYPE?

Response

<zone_type>

Parameter

<n>  Marker number
1    Marker 1
2    Marker 2
3    Marker 3
4    Marker 4
5    Marker 5
6    Marker 6
7    Marker 7
8    Marker 8
9    Marker 9
10   Marker 10
When omitted: Marker 1
<zone_type>  Zone type of Marker
ZONE          Zone marker
SPOT          Spot marker

Example of Use

To query the zone type of the marker in the marker 1.
CALC:MARK:WIDTH:TYPE?
> ZONE
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:CALCulate:MARKer[1]|2|3|4|5|6|7|8|9|10:TRACe 1|2|3|4|5|6
Marker Trace

Function

This command selects a trace to operate the marker (marker trace).

Command

:CALCulate:MARKer[n]:TRACe <mode>

Parameter

<n>          Marker number
1            Marker 1
2            Marker 2
3            Marker 3
4            Marker 4
5            Marker 5
6            Marker 6
7            Marker 7
8            Marker 8
9            Marker 9
10           Marker 10
When omitted: All markers

<mode>          Type of trace to be activated
1              Trace A
2              Trace B
3              Trace C
4              Trace D
5              Trace E
6              Trace F

Details

This command is not available in the following cases:
• During the Spectrum Emission Mask measurement.
• During the Spurious Emission measurement.

Example of Use

To set trace B of all markers as the marker trace.
CALC:MARK:TRAC  2

Related command

This command has the same function as the following command.
:TRACe:ACTive
:CALCulate:MARKer[1]|2|3|4|5|6|7|8|9|10:TRACe?
Marker Trace Query

Function

This command queries the trace to operate the marker (marker trace).

Query

:CALCulate:MARKer[n]:TRACe?

Response

<mode>

Parameter

<n> Marker number
1 Marker 1
2 Marker 2
3 Marker 3
4 Marker 4
5 Marker 5
6 Marker 6
7 Marker 7
8 Marker 8
9 Marker 9
10 Marker 10
When omitted: Marker 1

<mode> Type of active trace
1 Trace A
2 Trace B
3 Trace C
4 Trace D
5 Trace E
6 Trace F

Example of Use

To query all marker traces.
CALC:MARK:TRAC?
> 2
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:CALCulate:MARKer[1]|2|3|4|5|6|7|8|9|10[:SET]:CENTer
Marker to Center Frequency

Function

This command sets the marker frequency to the center frequency.

Command

:CALCulate:MARKer[n][:SET]:CENTer

Parameter

<n>  Marker number
1    Marker 1
2    Marker 2
3    Marker 3
4    Marker 4
5    Marker 5
6    Marker 6
7    Marker 7
8    Marker 8
9    Marker 9
10   Marker 10
When omitted: Marker 1

Details

This command is not available in the following cases:
• When the marker mode is set to Off.
• During the Spurious Emission measurement.
• During the Spectrum Emission Mask measurement.

Example of Use

To set the marker frequency to the center frequency.

CALC:MARK:CENT
:CALCulate:MARKer[1]|2|3|4|5|6|7|8|9|10[:SET]:RLEVel
Marker to Reference Level

Function

This command sets the marker level to the reference level.

Command

:CALCulate:MARKer[n][:SET]:RLEVel

Parameter

<n>  Marker number
1    Marker 1
2    Marker 2
3    Marker 3
4    Marker 4
5    Marker 5
6    Marker 6
7    Marker 7
8    Marker 8
9    Marker 9
10   Marker 10

When omitted: Marker 1

Details

This command is not available in the following cases:
• When the marker mode is set to Off.
• During the Spurious Emission measurement and when Display Segment Mode is set to Auto.

Not available during Spectrum Emission Mask measurement.

Example of Use

To set the marker level of the marker 1 to the reference level.
CALC:MARK:RLEV
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:CALCulate:MARKer:RESult INTegration|DENSity|PEAK
Marker Result

Function
This command sets the type of the marker display value.

Command
:CALCulate:MARKer:RESult <mode>

Parameter

<table>
<thead>
<tr>
<th>&lt;mode&gt;</th>
<th>Type of Marker display value</th>
</tr>
</thead>
<tbody>
<tr>
<td>INTegration</td>
<td>Total Power in the zone band</td>
</tr>
<tr>
<td>DENSity</td>
<td>Power per 1 Hz in the zone band</td>
</tr>
<tr>
<td>PEAK</td>
<td>Peak power in the zone</td>
</tr>
</tbody>
</table>

Details
Integration and Density cannot be set when Scale Mode is Lin.
Also, Integration cannot be set when Time Domain mode is selected.
Automatic setting of the peaking bias value cannot be used during
Spurious measurement and when Displayed Segment Mode is Auto.
Not available during Spectrum Emission Mask measurement.
The type of Marker display value is set to the peak power in the zone
when the N dB Bandwidth measurement function is set to On.

Example of Use
To set the marker display value to the total power in the zone band.
CALC:MARK:RES INT

:CALCulate:MARKer:RESult?
Marker Result Query

Function
This command queries the type of the marker display value.

Query
:CALCulate:MARKer:RESult?

Response

<table>
<thead>
<tr>
<th>&lt;mode&gt;</th>
</tr>
</thead>
<tbody>
<tr>
<td>INT</td>
</tr>
<tr>
<td>DENS</td>
</tr>
<tr>
<td>PEAK</td>
</tr>
</tbody>
</table>

Example of Use
To query the type of the marker display value.
CALC:MARK:RES?
> INT
:CALCulate:MARKer[1]|2|3|4|5|6|7|8|9|10:PEAK:X:POSition?
Marker Position Query

Function
This command queries the marker position by the number of display points from the left edge of the screen.

Query
:CALCulate:MARKer[n]:PEAK:X:POSition?

Response
<point>

Parameter

<n>
1  Marker 1
2  Marker 2
3  Marker 3
4  Marker 4
5  Marker 5
6  Marker 6
7  Marker 7
8  Marker 8
9  Marker 9
10 Marker 10
When omitted:  Marker 1

<point>
Marker position (Number of display points from the left edge of the screen)

Range
0 to 10, 20, 40, 50, 100, 200, 250, 400, 500, 1000, 2000, 5000, 10000,
30000 (MS269xA, MS2830A, MS2840A Only)
(The upper limit varies depending on the number of the trace display points.)
−999.0 is returned when no measurement is performed or an error occurs.

Resolution 1

Details
This command is not available during Spurious Emission measurement and when Displayed Segment Mode is Auto.

Example of Use
To query the marker position of Marker 1.
CALC:MARK:PEAK:X:POS?
> 500
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:CALCulate:MARKer[1]|2|3|4|5|6|7|8|9|10:PEAK:X?
Marker Frequency (Time) Query

Function
This command queries the frequency or time at the marker point. As for the delta marker, this command queries the frequency difference or time
difference between the delta marker and the marker specified by Relative To.

Query
:CALCulate:MARKer[n]:PEAK:X?

Response
<freq>  (in frequency domain)
<time>  (in time domain)

Parameter

<n>       Marker number
  1        Marker 1
  2        Marker 2
  3        Marker 3
  4        Marker 4
  5        Marker 5
  6        Marker 6
  7        Marker 7
  8        Marker 8
  9        Marker 9
 10       Marker 10
When omitted:  Marker 1

<freq>  In frequency domain
Resolution  0.01 Hz.
Suffix code None. Value is returned in Hz units.
-999999999999 is returned when no measurement is performed or an error occurs.

<time>  In time domain
resolution  0.1 ns.
Suffix code None. Value is returned in s units.
-999999999999 is returned when no measurement is performed or an error occurs.

Details
This command is not available during Spurious Emission measurement
and when Displayed Segment Mode is Auto.

Example of Use
To query the frequency at the marker point of Marker 1.
CALC:MARK:PEAK:X?
> 1.00
Function  

This command queries the level at the marker point. In case of delta marker, it queries the level ratio.

Query  

:CALCulate:MARKer[n][[:PEAK][:Y]?  

Response  

<level>  

Parameter  

<n>  

Marker number  

1  
Marker 1  

2  
Marker 2  

3  
Marker 3  

4  
Marker 4  

5  
Marker 5  

6  
Marker 6  

7  
Marker 7  

8  
Marker 8  

9  
Marker 9  

10  
Marker 10  

When omitted:  
Marker 1  

<level>  

Marker point level  

When marker level display units are dB-system units  
Resolution 0.001 dB  
Suffix code None. Value is returned in the unit specified by Scale Unit.  
−999.0 is returned when no measurement is performed or an error occurs.

When marker level display units are V-system units  
Resolution 0.01 pV  
Suffix code None. Value is returned in V units.  
−999.0 is returned when no measurement is performed or an error occurs.

When marker level display units are W-system units  
Resolution 0.01 yW  
Suffix code None. Value is returned in W units.  
−999.0 is returned when no measurement is performed or an error occurs.
When Marker Mode is Delta and Scale Mode is Log

<table>
<thead>
<tr>
<th>Description</th>
<th>Value</th>
</tr>
</thead>
<tbody>
<tr>
<td>Resolution</td>
<td>0.001 dB</td>
</tr>
<tr>
<td>Suffix code</td>
<td>None. Value is returned in dB units.</td>
</tr>
<tr>
<td></td>
<td>–999.0 is returned at no measurement or error</td>
</tr>
</tbody>
</table>

When Marker Mode is Delta and Scale Mode is Lin

<table>
<thead>
<tr>
<th>Description</th>
<th>Value</th>
</tr>
</thead>
<tbody>
<tr>
<td>Range</td>
<td>0.0000 to 10000</td>
</tr>
<tr>
<td>Resolution</td>
<td>0.0001</td>
</tr>
<tr>
<td>Suffix code</td>
<td>None, no units,</td>
</tr>
<tr>
<td></td>
<td>–999.0 is returned at no measurement or error</td>
</tr>
</tbody>
</table>

Details

This command is not available during Spurious Emission measurement and when Displayed Segment Mode is Auto.

Example of Use

To query the level at the marker point of Marker 1.

```
CALC:MARK:Y?
> -73.687
```

Related command

This command has the same function as the following commands.

```
:CALCulate:ACPower:MARKer[1]|2|3|4|5|6|7|8|9|10:Y?
:CALCulate:CHPower:MARKer[1]|2|3|4|5|6|7|8|9|10:Y?
:CALCulate:OBWidth:MARKer[1]|2|3|4|5|6|7|8|9|10:Y?
:CALCulate:SPURious:MARKer[1]|2|3|4|5|6|7|8|9|10:Y?
```
:CALCulate:MARKer[1]|2|3|4|5|6|7|8|9|10[:PEAK]:Y:DELTa?
Marker Relative Level Query

Function

This command queries the marker level in relative value.

Query

:CALCulate:MARKer[n][:PEAK]:Y:DELTa?

Response

<level>

Parameter

<n> Marker Number
1 Specifies marker 1
2 Specifies marker 2
3 Specifies marker 3
4 Specifies marker 4
5 Specifies marker 5
6 Specifies marker 6
7 Specifies marker 7
8 Specifies marker 8
9 Specifies marker 9
10 Specifies marker 10
When omitted: Specifies marker 1
<level> Marker level in relative value

When Scale Mode is Log
resolution 0.001 dB
Suffix code None. Value is returned in dB units.
–999.0” is returned at no measurement or error

When Scale Mode is Lin
Range 0.0000 to 10000
Resolution 0.0001
Suffix code None, no units
“–999.0” is returned at no measurement or error

Details

–999.0 is returned when Marker Mode is set to other than Delta.
Not available when Marker Mode is set other than Delta.

Example of Use

To query the relative level of marker 1.
CALC:MARK:Y:DELT?
> –73.687
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:CALCulate:MARKer:REFerence:X:POSition?
Reference Marker Position Query

Function

This command queries the position of the marker specified by Relative To of the active marker by the display points from the left edge of the screen.

Query

:CALCulate:MARKer:REFerence:X:POSition?

Response

<integer>

Parameter

<integer>  Marker position set in Relative To (Number of display points from the left edge of the screen)
Range  0 to 10, 20, 40, 50, 100, 200, 250, 400, 500, 1000, 2000, 5000, 10000, 30000 (MS269xA, MS2830A, MS2840A Only)
(The upper limit varies depending on the number of the trace display points.)
Resolution  1

Details

–999.0 is returned when Marker Mode is set to other than Delta.
This command queries the result in absolute values even if the marker mode specified by Relative To is set to Delta.
This command is not available during Spurious Emission measurement and when Displayed Segment Mode is Auto.

Example of Use

To query the position of the marker point set in Relative To.

CALC:MARK:REF:X:POS?
> 123
**:CALCulate:MARKer:REFerence:X?**

Reference Marker Frequency (Time) Query

**Function**

This command queries the frequency or time at the marker point set in Relative To of the active marker.

**Query**

:CALCulate:MARKer:REFerence:X?

**Response**

<freq>
<time>

**Parameter**

<freq>
- Resolution 0.01 Hz
- Suffix code None. Value is returned in Hz units.

<time>
- Resolution 0.1 ns
- Suffix code None. Value is returned in s units.

**Details**

-999.0 is returned when Marker Mode is set to other than Delta.
This command is not available during Spurious Emission measurement and when Displayed Segment Mode is Auto.

**Example of Use**

To query the time at the marker point set in Relative To of the active marker.

CALC:MARK:REF:X?

> 1.0
Chapter 2  SCPI Device Message Details

:CALCulate:MARKer:REFerence:Y?
Reference Marker Level Query

Function
This command queries the level data at the marker point set in Relative To of the active marker.

Query
:CALCulate:MARKer:REFerence:Y?

Response
<real>

Parameter
<real> Level at reference marker point
When scale unit settings are dB-system units.
Resolution 0.001 dB
Suffix code None. Value is returned in the unit specified by Scale Unit.

When scale unit settings are V-system units.
Resolution 0.01 pV
Suffix code None. Value is returned in V units.

When scale unit settings are W-system units.
Resolution 0.01 yW
Suffix code None. Value is returned in W units.

Details
−999.0 is returned when Marker Mode is set to other than Delta.
This command is not available during Spurious Emission measurement and when Displayed Segment Mode is Auto.

Example of Use
To query the level at the marker point set in Relative To of the active marker.
CALC:MARK:REF:Y?
> 1.234
This command queries the total power and the power density within the range of the zone marker.

Query

:CALCulate:PMARker[n]:Y?

Response

<power>,<density>

Parameter

<n>  Marker number
1   Marker 1
2   Marker 2
3   Marker 3
4   Marker 4
5   Marker 5
6   Marker 6
7   Marker 7
8   Marker 8
9   Marker 9
10  Marker 10

When omitted: Marker 1

<power>  Total power within the range of zone marker (/Zone)

<density>  Power density within the range of zone marker (/Hz)

When scale unit settings are dB-system units.

Resolution  0.001 dB
Suffix code  None. Value is returned in the unit specified by Scale Unit.
–999.0 is returned when no measurement is performed or an error occurs.
–999.0 is returned when Marker Mode is set to Fixed or Off.
–999.0 is returned when Zone Width Type is set to Spot.
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When scale unit settings are V-system units.
Resolution  0.001 dB
Suffix code  None. Value is returned in dBm units.
–999.0 is returned when no measurement is performed or an error occurs.
–999.0 is returned when Marker Mode is set to Fixed or Off.
–999.0 is returned when Zone Width Type is set to Spot.

When scale unit settings are W-system units.
Resolution  0.01 yW
Suffix code  None. Value is returned in W units.
–999.0 is returned when no measurement is performed or an error occurs. 
–999.0 is returned when Marker Mode is set to Fixed or Off.
–999.0 is returned when Zone Width Type is set to Spot.

Details
This command is not available during Spurious Emission measurement and when Displayed Segment Mode is Auto.

Example of Use
To query the total power and the power density within the range of the zone marker.
CALC:PMAR:Y?
> -8.000,-50.000
:CALCulate:PMARker:DELTa:Y?
Power Marker Result Query

Function
This command queries the total power ratio and the power density ratio within the range of the zone marker, regarding the active marker and the marker specified by Relative To.

Query
:CALCulate:PMARker:DELTa:Y?

Response
<power>,<density>

Parameter
<power> Relative value of the difference of the total power (/Zone) between the active marker and the marker specified by Relative To.

<density> Relative value of the difference of the power density (/Hz) between the active marker and the marker specified by Relative To.

Resolution 0.001 dB
Suffix code None. Value is returned in dB units.
–999.0 is returned when not measured or an error occurs.
–999.0 is returned when Marker Mode of the marker specified by Relative To is set to Fixed.
–999.0 is returned when Marker Mode is set to other than Delta.
–999.0 is returned when Zone Width Type is set to Spot.
–999.0 is returned when Scale Mode is set to Lin.

Details
This command is not available during Spurious Emission measurement and when Displayed Segment Mode is Auto.

Example of Use
To query the total power ratio and the power density ratio within the ratio of the zone marker, regarding the active marker and the marker specified by Relative To.
CALC:PMAR:DELT:Y?
> 2.230,2.230
Chapter 2  SCPI Device Message Details

:CALCulate:MARKer:AOFF
All Marker Off

Function
This command sets all the markers to Off.

Command
:CALCulate:MARKer:AOFF

Details
This command is not available during Spurious Emission measurement and when Displayed Segment Mode is Auto.
Not available during Spectrum Emission Mask measurement.

Example of Use
To set all the markers to Off.
CALC:MARK:AOFF

Related command
This command has the same function as the following commands.
:CALCulate:ACPower:MARKer:AOFF
:CALCulate:CHPower:MARKer:AOFF
:CALCulate:OBWidth:MARKer:AOFF
:CALCulate:BFOWer|:TXPower:MARKer:AOFF
:CALCulate:MARKer:READout?

Marker READout Query

Function

This command queries all the marker values.

Query

:CALCulate:MARKer:READout?

Response

<freq_1>,<power_1>,<freq_2>,<power_2>,..., <freq_10>,<power_10>

(in frequency domain)

<time_1>,<power_1>,<time_2>,<power_2>,..., <time_10>,<power_10>

(in time domain)

Parameter

<freq_n>

Frequency of marker n
Resolution 0.01 Hz
Suffix code None. Value is returned in Hz units.
–999999999999 is returned when no measurement is performed, an error has occurred, or the marker is Off.

<power_n>

Level of Marker n
When marker level display units are dB-system units.
Resolution 0.001 dB
Suffix code None. Value is returned in the unit specified by Scale Unit. 
–999.0 is returned when no measurement is performed, an error has occurred, or the marker is Off.

When marker level display units are V units.
Resolution 0.01 pV
Suffix code None. Value is returned in V units. 
–999.0 is returned when no measurement is performed, an error has occurred, or the marker is Off.

When marker level display units are W units.
Resolution 0.01 yW
Suffix code  None. Value is returned in W units.
          –999.0 is returned when no measurement is performed, an error has occurred, or the marker is Off.

When marker level display units are X multiple-system units.
Resolution  0.0001
Suffix code  None
          1:1 when X = 1. –999.0 is returned when no measurement is performed, an error has occurred, or the marker is Off.

<time_n>
          time of marker n
Resolution  0.1 ns
Suffix code  None. Value is returned in s units.
          –999999999999 is returned when no measurement is performed, an error has occurred, or the marker is Off.

Details

This command is not available during Spurious Emission measurement and when Displayed Segment Mode is Auto.

Example of Use

To query all the marker values (frequency domain).
CALC:MARK:READ?
> 1000000.00,-15.321,1100000.00,-23.000,
1200000.00,-15.321,1300000.00,-12.680,
1400000.00,-5.622,1500000.00,-65.056,
1600000.00,-26.534,1700000.00,-34.264,
1800000.00,-35.644,-999999999999,-999.0
2.4 Marker

:CALCulate:MARKer[1]|2|3|4|5|6|7|8|9|10:FCOunt:GATetime <time>
Frequency Counter Gate Time

Function

This command sets the counter gate time for frequency counter.

Command

:CALCulate:MARKer[n]:FCOunt:GATetime <time>

Parameter

<n>    Marker number
1      Marker 1
2      Marker 2
3      Marker 3
4      Marker 4
5      Marker 5
6      Marker 6
7      Marker 7
8      Marker 8
9      Marker 9
10     Marker 10
When omitted: Marker 1
<time> Center time of zone marker
Range  100 µs to 1 s
Resolution  50 µs
Suffix code  NS, US, MS, S
S is used when the suffix code is omitted.

Details

This command is not available when frequency counter is set to Off.
The setting value is shared by all the markers.

Example of Use

To set the counter gate time for frequency counter to 100 ms.
CALC:MARK:FCO:GAT 100MS
Chapter 2  SCPI Device Message Details

:CALCulate:MARKer[1]|2|3|4|5|6|7|8|9|10:FCOunt:GATetime?
Frequency Counter Gate Time Query

Function

This command queries the counter gate time of the frequency counter.

Query

:CALCulate:MARKer[n]:FCOunt:GATetime?

Response

<time>

Parameter

<time>

Mark number

1  Marker 1
2  Marker 2
3  Marker 3
4  Marker 4
5  Marker 5
6  Marker 6
7  Marker 7
8  Marker 8
9  Marker 9
10 Marker 10

When omitted: Marker 1

Center time of zone marker

Range  100 µs to 1 s
Resolution  0.00001 s
Suffix code  None

Details

The setting value is shared by all the markers.

Example of Use

To query the counter gate time of the frequency counter.
CALC:MARK:FCO:GAT?
> 0.00001
**Function**

This command turns On/Off the frequency counter.

**Command**

:CALCulate:MARKer[n]:FCOunt[:STATe] <switch>

**Parameter**

<table>
<thead>
<tr>
<th>&lt;n&gt;</th>
<th>Marker number</th>
</tr>
</thead>
<tbody>
<tr>
<td>1</td>
<td>Marker 1</td>
</tr>
<tr>
<td>2</td>
<td>Marker 2</td>
</tr>
<tr>
<td>3</td>
<td>Marker 3</td>
</tr>
<tr>
<td>4</td>
<td>Marker 4</td>
</tr>
<tr>
<td>5</td>
<td>Marker 5</td>
</tr>
<tr>
<td>6</td>
<td>Marker 6</td>
</tr>
<tr>
<td>7</td>
<td>Marker 7</td>
</tr>
<tr>
<td>8</td>
<td>Marker 8</td>
</tr>
<tr>
<td>9</td>
<td>Marker 9</td>
</tr>
<tr>
<td>10</td>
<td>Marker 10</td>
</tr>
</tbody>
</table>

When omitted: Marker 1

<table>
<thead>
<tr>
<th>&lt;switch&gt;</th>
<th>Frequency counter On/Off</th>
</tr>
</thead>
<tbody>
<tr>
<td>ON</td>
<td>1</td>
</tr>
<tr>
<td>OFF</td>
<td>0</td>
</tr>
</tbody>
</table>

**Details**

The frequency counter is available only for the active markers. Following execution of this command, the marker with the specified marker number becomes active.

The setting value is shared by all the markers.

This command is not available when Gate Sweep is On.
This command is not available when Marker Result is Integration or Density.
This command is not available when RBW is equal to or lower than 30 Hz.
This command is disabled during the Spurious Emission measurement.
This command is disabled during the Spectrum Emission Mask measurement.
This command is disabled when Noise Cancel is set to On.
This command is disabled when Internal Signal Generator Control On/Off is set to On.

**Example of Use**

To set marker 1 as the active marker and switch on the frequency counter function.

```
CALC:MARK:FCO ON
```
:CALCulate:MARKer[1]|2|3|4|5|6|7|8|9|10:FCOunt[:STATe]?

Frequency Counter State Query

Function
This command queries the On/Off status of frequency counter.

Query
:CALCulate:MARKer[n]:FCOunt[:STATe]?

Response
<switch>

Parameter

<table>
<thead>
<tr>
<th>&lt;n&gt;</th>
<th>Marker number</th>
</tr>
</thead>
<tbody>
<tr>
<td>1</td>
<td>Marker 1</td>
</tr>
<tr>
<td>2</td>
<td>Marker 2</td>
</tr>
<tr>
<td>3</td>
<td>Marker 3</td>
</tr>
<tr>
<td>4</td>
<td>Marker 4</td>
</tr>
<tr>
<td>5</td>
<td>Marker 5</td>
</tr>
<tr>
<td>6</td>
<td>Marker 6</td>
</tr>
<tr>
<td>7</td>
<td>Marker 7</td>
</tr>
<tr>
<td>8</td>
<td>Marker 8</td>
</tr>
<tr>
<td>9</td>
<td>Marker 9</td>
</tr>
<tr>
<td>10</td>
<td>Marker 10</td>
</tr>
</tbody>
</table>

When omitted: Marker 1

<switch> Frequency counter On/Off

| 1   | Frequency counter is On. |
| 0   | Frequency counter is Off. |

Details
This setting is shared in common for all the markers.

Example of Use
To query the On/Off status of the frequency counter.

CALC:MARK:FCO?

> 1
:CALCulate:MARKer[1]|2|3|4|5|6|7|8|9|10:FOCunt:X?
Frequency Counter Query

Function

This command queries the measured value of the frequency counter.

Query

:CALCulate:MARKer[n]:FOCunt:X?

Response

<freq>

Parameter

<n> Marker number
1 Marker 1
2 Marker 2
3 Marker 3
4 Marker 4
5 Marker 5
6 Marker 6
7 Marker 7
8 Marker 8
9 Marker 9
10 Marker 10
When omitted: Marker 1
<freq> Center frequency of zone maker
Range –99.999999999999 GHz to 99.999999999999 GHz
Resolution 0.001 Hz
Suffix code None
–999999999999 is returned when no measurement is executed or when there is an error.

Details

A non-measurement value is returned when a marker number other than that of the active marker has been specified.
A non-measurement value is returned when the Marker Mode is either Fixed or Off.

Example of Use

To query the frequency counter value of marker 1.

CALC:MARK:FCO:X?
> 100000000.00
Chapter 2  SCPI Device Message Details

:CALCulate:MARKer:TRCKing[:STATe] OFF|ON|0|1

Marker Tracking Function

This command sets the Marker tracking function to On/Off.

Command

:CALCulate:MARKer:TRCKing[:STATe] <switch>

Parameter

<switch>  Marker tracking function On/Off
  ON|1  Marker tracking On
  OFF|0  Marker tracking Off

Details

Conducts sweep after adjusting the center frequency of trace to that of the active marker frequency.

Example of Use

To enable Marker tracking
CALC:MARK:TRCK ON

:CALCulate:MARKer:TRCKing[:STATe]?

Marker Tracking Query Function

This command queries the Marker tracking function to On/Off.

Query

:CALCulate:MARKer:TRCKing[:STATe]?

Response

<switch>

Parameter

<switch>  Marker tracking function On/Off
  1  Marker tracking function On
  0  Marker tracking function Off

Example of Use

To query the marker tracking setting
CALC:MARK:TRCK?
> 1
:CALCulate:BANDwidth|:BWIDth:NDB:STATe OFF|ON|0|1

N dB Bandwidth

Function

This command enables/disables the N dB Bandwidth measurement function.

Command

:CALCulate:BANDwidth|:BWIDth:NDB:STATe <switch>

Parameter

<switch> N dB Bandwidth measurement function On/Off
ON|1 Enables N dB Bandwidth measurement function
OFF|0 Disables N dB Bandwidth measurement function (Default)

Details

This command is available only for MS2830A.
This cannot be executed under the following conditions:
• In Time Domain
• When Scale Mode is Linear
• When Gate View is On
• When the Measure function is On

Example of Use

To enable the N dB Bandwidth measurement function.
CALC:BAND:NDB:STAT ON

:CALCulate:BANDwidth|:BWIDth:NDB:STATe?

N dB Bandwidth Query

Function

This command queries the On/Off state of the N dB Bandwidth measurement function.

Query

:CALCulate:BANDwidth|:BWIDth:NDB:STATe?

Response

<switch>

Parameter

<switch> N dB Bandwidth measurement function On/Off
1 N dB Bandwidth measurement function is enabled.
0 N dB Bandwidth measurement function is disabled.

Details

This command is available only for MS2830A.

Example of Use

To query the On/Off state of the N dB Bandwidth measurement function.
CALC:BAND:NDB:STAT?
> 1
### :CALCulate:BANDwidth|:BWIDth:NDB <rel_ampl>

**N dB Value**

**Function**

This command sets the N dB value when the N dB Bandwidth measurement is executed.

**Command**

:CALCulate:BANDwidth|:BWIDth:NDB <rel_ampl>

**Parameter**

<rel_ampl>  
N dB value

- **Range**: –140.00 to –0.01 dB
- **Resolution**: 0.01 dB
- **Suffix code**: DB, dB is used even when omitted.
- **Default**: –3.01 dB

**Details**

This command is available only for MS2830A.

**Sets a dB value to shift from the level that the active marker indicates.**

**Example of Use**

To set the N dB value to –3.01 dB.

CALC:BAND:NDB –3.01DB

### :CALCulate:BANDwidth|:BWIDth:NDB?

**N dB Value Query**

**Function**

This command queries the N dB value.

**Query**

:CALCulate:BANDwidth|:BWIDth:NDB?

**Response**

<rel_ampl>

**Parameter**

<rel_ampl>  
N dB value

- **Range**: –140.00 to –0.01 dB
- **Resolution**: 0.01 dB
- **Suffix code**: None. Value is returned in dB units.

**Details**

This command is available only for MS2830A.

**Example of Use**

To query the N dB value.

CALC:BAND:NDB?

> –3.01
:CALCulate:BANDwidth|:BWIDth:NDB:RESult?

N dB Bandwidth Result Query

Function

This command queries the measurement result for the N dB Bandwidth measurement.

Query

:CALCulate:BANDwidth|:BWIDth:NDB:RESult?

Response

<freq>

Parameter

<freq> N dB Bandwidth

Range

0.01 Hz to 3.7 GHz (MS2830A-040)
0.01 Hz to 6.1 GHz (MS2830A-041)
0.01 Hz to 13.6 GHz (MS2830A-043)
0.01 Hz to 26.6 GHz (MS2830A-044)
0.01 Hz to 43.1 GHz (MS2830A-045)

Resolution

0.01 Hz

Suffix code

None. Value is returned in Hz units.

–999999999999 is returned when no measurement is performed, an error occurs, or N dB Bandwidth is Off.

Details

This command is available only for MS2830A.

Example of Use

To query the measurement result for N dB Bandwidth.

CALC:BAND:NDB:RES?

> 10000000.00
# 2.5 Signal Search

Table 2.5-1 lists device messages for signal search.

<table>
<thead>
<tr>
<th>Function</th>
<th>Device Message</th>
</tr>
</thead>
<tbody>
<tr>
<td>Peak Search</td>
<td>:CALCulate:MARKer[1]</td>
</tr>
<tr>
<td>Next Peak Search</td>
<td>:CALCulate:MARKer[1]</td>
</tr>
<tr>
<td>Power Peak Search</td>
<td>:CALCulate:MARKer[1]</td>
</tr>
<tr>
<td>Minimum Search</td>
<td>:CALCulate:MARKer[1]</td>
</tr>
<tr>
<td>Marker Peak Excursion</td>
<td>:CALCulate:MARKer:PEAK:RESolution</td>
</tr>
<tr>
<td></td>
<td>:CALCulate:MARKer:PEAK:RESolution</td>
</tr>
<tr>
<td>Peak Search Threshold Level</td>
<td>:CALCulate:MARKer:PEAK:THReshold &lt;ampl&gt;</td>
</tr>
<tr>
<td></td>
<td>:CALCulate:MARKer:PEAK:THReshold?</td>
</tr>
<tr>
<td>Peak Search Threshold Level On/Off</td>
<td>:CALCulate:MARKer:PEAK:THReshold:STATe ON</td>
</tr>
<tr>
<td></td>
<td>:CALCulate:MARKer:PEAK:THReshold:STATe?</td>
</tr>
<tr>
<td>Peak Search Mode</td>
<td>:CALCulate:MARKer:PEAK:THReshold:MODE ABOVE</td>
</tr>
<tr>
<td></td>
<td>:CALCulate:MARKer:PEAK:THReshold:MODE?</td>
</tr>
<tr>
<td>All Peak Search and Query</td>
<td>:CALCulate:DATA:PEAKs[:LOGarithmic]?</td>
</tr>
<tr>
<td></td>
<td>&lt;threshold&gt;,&lt;resolution&gt;[,&lt;sort&gt;]</td>
</tr>
<tr>
<td>Search Peaks Sort Y</td>
<td>:CALCulate:MARKer:PEAK:SORT:Y</td>
</tr>
<tr>
<td>Search Peaks Number</td>
<td>:CALCulate:MARKer:PEAK:SORT:COUNt &lt;integer&gt;</td>
</tr>
<tr>
<td></td>
<td>:CALCulate:MARKer:PEAK:SORT:COUNt?</td>
</tr>
</tbody>
</table>
**2.5 Signal Search**

:CALCulate:MARKer[1]|2|3|4|5|6|7|8|9|10:MAXimum

**Peak Search**

Function

This command searches for the peak point of active trace and moves the marker point.

**Command**

:CALCulate:MARKer[n]:MAXimum

**Parameter**

<n>   Marker number
1     Marker 1
2     Marker 2
3     Marker 3
4     Marker 4
5     Marker 5
6     Marker 6
7     Marker 7
8     Marker 8
9     Marker 9
10    Marker 10
When omitted: Marker 1

**Details**

This command is not available during Spurious Emission measurement and when Displayed Segment Mode is Auto.
Not available during Spectrum Emission Mask measurement.

**Example of Use**

To move the marker 1 to the maximum level point.
CALC:MARK:MAX

**Related command**

This command has the same function as the following commands.
:CALCulate:ACPower:MARKer[1]|2|3|4|5|6|7|8|9|10:MAXimum
:CALCulate:CHPower:MARKer[1]|2|3|4|5|6|7|8|9|10:MAXimum
:CALCulate:OBWidth:MARKer[1]|2|3|4|5|6|7|8|9|10:MAXimum
:CALCulate:BPOWer|:TXPower:MARKer[1]|2|3|4|5|6|7|8|9|10:MAXimum
Next Peak Search

This command searches for the characteristics of the active trace and moves the marker to a smaller level peak than the present marker level.

Command

:CALCulate:MARKer[n]:MAXimum:NEXT

Parameter

<n>  Marker number
1    Marker 1
2    Marker 2
3    Marker 3
4    Marker 4
5    Marker 5
6    Marker 6
7    Marker 7
8    Marker 8
9    Marker 9
10   Marker 10

When omitted: Marker 1

Details

This command is not available during Spurious Emission measurement and when Displayed Segment Mode is Auto. Not available during Spectrum Emission Mask measurement.

Example of Use

To move the marker 1 to the next peak.
CALC:MARK:MAX:NEXT

Related command

This command has the same function as the following command.
:CALCulate:MARKer[1]|2|3|4|5|6|7|8|9|10:MAXimum:POWer

Power Peak Search

Function

This command moves the active marker to the position where the peak power of the zone width of the active marker becomes maximum in the measurement band.

Command

:CALCulate:MARKer[n]:MAXimum:POWer

Parameter

<n>  Marker Number
1    Specifies marker 1
2    Specifies marker 2
3    Specifies marker 3
4    Specifies marker 4
5    Specifies marker 5
6    Specifies marker 6
7    Specifies marker 7
8    Specifies marker 8
9    Specifies marker 9
10    Specifies marker 10
When omitted:  Specifies marker 1

Details

This cannot be executed under the following conditions:
- In Time Domain
- When Scale Mode is Linear
- When active trace is Blank
- When Spurious Emission measurement is On and Displayed Segment Mode is Auto
- When Spectrum Emission Mask measurement is On

Example of Use

To move marker 1 to position where peak power of zone width is maximum value.
CALC:MARK:MAX:POW
Chapter 2  SCPI Device Message Details

Related command

This has the same function as the following commands.

:CALCulate:CHPower:MARKer[1]|2|3|4|5|6|7|8|9|10:MAXimum:POWer
:CALCulate:OBWidth:MARKer[1]|2|3|4|5|6|7|8|9|10:MAXimum:POWer
:CALCulate:SPURious:MARKer[1]|2|3|4|5|6|7|8|9|10:MAXimum:POWer
2.5 Signal Search

:CALCulate:MARKer[1]|2|3|4|5|6|7|8|9|10:MAXimum:POWer:NEXT

Next Power Peak Search

Function

This command searches for the next largest peak power in the zone width compared to the total power of the zone width of the active marker in the measurement band and moves the active marker.

Command

:CALCulate:MARKer[n]:MAXimum:POWer:NEXT

Parameter

<n> Marker No.
1 Specifies marker 1
2 Specifies marker 2
3 Specifies marker 3
4 Specifies marker 4
5 Specifies marker 5
6 Specifies marker 6
7 Specifies marker 7
8 Specifies marker 8
9 Specifies marker 9
10 Specifies marker 10
When omitted: Specifies marker 1

Details

This function is not available under the following condition:
- When in Time Domain
- When Scale Mode is Linear scale.
- When Active Trace is Blank.
- When Spurious Emission measurement is enabled, and also Displayed Segment Mode is set to Auto.
- When Spectrum Emission Mask measurement is enabled.

Example of Use

To move marker 1 to the position with the next largest peak power
CALC:MARK:MAX:POW:NEXT

Related command

This command has the same function as the following command.
Minimum Search

This command moves the marker so that the minimum level point in the measurement band becomes the center frequency of the zone marker.

Command

:CALCulate:MARKer[n]:MINimum

Parameter

<n>        Marker Number
1          Specifies marker 1
2          Specifies marker 2
3          Specifies marker 3
4          Specifies marker 4
5          Specifies marker 5
6          Specifies marker 6
7          Specifies marker 7
8          Specifies marker 8
9          Specifies marker 9
10         Specifies marker 10
When omitted: Specifies marker 1

Details

This command is not available during Spurious Emission measurement and when Displayed Segment Mode is Auto.
Not available during Spectrum Emission Mask measurement.

Example of Use

To move the marker 1 to the minimum level point.
CALC:MARK:MIN

Related Command

This command has the same function as the following command.
:CALCulate:ACPower:MARKer[1]|2|3|4|5|6|7|8|9|10:MINimum
:CALCulate:CPower:MARKer[1]|2|3|4|5|6|7|8|9|10:MINimum
:CALCulate:OBWidth:MARKer[1]|2|3|4|5|6|7|8|9|10:MINimum
:CALCulate:BPOWer|:TXPower:MARKer[1]|2|3|4|5|6|7|8|9|10:MINimum
Next Minimum Search

Function

This command searches for the next dip of the active marker and moves the marker so that it becomes the center frequency of the zone marker.

Command

`:CALCulate:MARKer[n]:MINimum:NEXT`

Parameter

 `<n>`  
Marker Number

1  
Specifies marker 1

2  
Specifies marker 2

3  
Specifies marker 3

4  
Specifies marker 4

5  
Specifies marker 5

6  
Specifies marker 6

7  
Specifies marker 7

8  
Specifies marker 8

9  
Specifies marker 9

10  
Specifies marker 10

When omitted:  
Specifies marker 1

Details

This command is not available during Spurious Emission measurement and when Displayed Segment Mode is Auto.

Not available during Spectrum Emission Mask measurement.

Example of Use

To move the marker 1 to the next dip.

CALC:MARK:MIN:NEXT

Related Command

This command has the same function as the following command.

Chapter 2  SCPI Device Message Details

:CALCulate:MARKer:PEAK:RESolution|EXCursion <rel_ampl>|<percent>
Marker Peak Excursion

Function
This command sets the resolution in detecting the peak point.

Command
When Scale Mode is set to Log.
:CALCulate:MARKer:PEAK:RESolution|EXCursion <rel_ampl>
When Scale Mode is set to Lin.
:CALCulate:MARKer:PEAK:RESolution|EXCursion <percent>

Parameter

<rel_ampl>
| Range       | 0.001 to 100.000 dB       |
| Suffix code | DB                        |
| Default     | 2 dB                      |

<percent>
| Range       | 0.01 to 100.00%           |
| Suffix code | None                      |
| Default     | 2%                        |

Details
This command is not available during Spurious Emission measurement and when Displayed Segment Mode is Auto.
Not available during Spectrum Emission Mask measurement.

Example of Use
To set the resolution to 20 dB.
CALC:MARK:PEAK:RES 20DB
:CALCulate:MARKer:PEAK:RESolution|EXCursion?
Marker Peak Excursion Query

Function

This command queries the resolution when a peak point is detected.

Query

:CALCulate:MARKer:PEAK:RESolution|EXCursion?

Response

<rel_ampl> (When Scale Mode is set to Log.)
<percent> (When Scale Mode is set to Lin.)

Parameter

<rel_ampl>
  Range  0.001 to 100.000 dB
  Suffix code None. Value is returned in dB units.
  Default  2 dB

<percent>
  Range  0.01 to 100.00%
  Suffix code None. Value is returned in % units.
  Default  2%

Example of Use

To query the resolution.
CALC:MARK:PEAK:RES?
> 20.000
Chapter 2  SCPI Device Message Details

:CALCulate:MARKer:PEAK:THReshold <ampl>

Peak Search Threshold Level

Function

This command sets the threshold when a peak point is detected.

Command

:CALCulate:MARKer:PEAK:THReshold <ampl>

Parameter

<ampl>  
Threshold when searching for the peak point

Range  
Full width of Y axis

Resolution  
0.01 dB (When Scale Unit settings are dB-system.)
0.01 pV (When the setting of Scale Unit is V.)
0.01 yW (When the setting of Scale Unit is W.)

Suffix code

<table>
<thead>
<tr>
<th>Suffix code</th>
</tr>
</thead>
<tbody>
<tr>
<td></td>
</tr>
<tr>
<td>DBM, DM</td>
</tr>
<tr>
<td>DBMV</td>
</tr>
<tr>
<td>DBUV</td>
</tr>
<tr>
<td>DBUVE</td>
</tr>
<tr>
<td>DBUVM</td>
</tr>
<tr>
<td>V</td>
</tr>
<tr>
<td>MV</td>
</tr>
<tr>
<td>UV</td>
</tr>
<tr>
<td>W</td>
</tr>
<tr>
<td>MW</td>
</tr>
<tr>
<td>UW</td>
</tr>
<tr>
<td>NW</td>
</tr>
<tr>
<td>PW</td>
</tr>
<tr>
<td>FW</td>
</tr>
</tbody>
</table>

Follows the setting of Scale Unit, when omitted.
V is used when it is Linear Scale.

Default

Y-axis center

Details

This command is not available during Spurious Emission measurement and when Displayed Segment Mode is Auto.
Not available during Spectrum Emission Mask measurement.

Example of Use

To set the threshold when searching for the peak point to −10 dBm.
CALC:MARK:PEAK:THR −10DBM
:CALCulate:MARK:PEAK:THReshold?
Peak Search Threshold Level Query

Function

This command queries the threshold when searching for the peak point.

Query

:CALCulate:MARKer:PEAK:THReshold?

Response

<ampl>

Parameter

<ampl> Threshold when searching for the peak point
  Range Full width of Y-axis
  Resolution 0.01 dB (When scale unit settings are dB-system units)
              0.01 pV (When scale unit settings are V-system units)
              0.01 yW (When scale unit settings are W-system units)
              No suffix code. Returns a value based on the unit setting of Scale Unit.
              V is used when the unit is V, and W when W.

Example of Use

To query the threshold when searching for the peak point.
CALC:MARK:PEAK:THR?
> -10.00
Chapter 2  SCPI Device Message Details

:CALCulate:MARKer:PEAK:THReshold:STATe ON|OFF|1|0
Peak Search Threshold Level On/Off

Function
This command sets the threshold On/Off, when searching for the peak point.

Command
:CALCulate:MARKer:PEAK:THReshold:STATe <switch>

Parameter
<switch>  Threshold when searching for the peak point
0|OFF      Sets the threshold to Off (Default).
1|ON       Sets the threshold to On.

Details
This command is not available during Spurious Emission measurement and when Displayed Segment Mode is Auto.
Not available during Spectrum Emission Mask measurement.

Example of Use
To set the threshold when searching for the peak point to On.
CALC:MARK:PEAK:THR:STAT ON

:CALCulate:MARKer:PEAK:THReshold:STATe?
Peak Search Threshold Level On/Off Query

Function
This command queries the On/Off state of the threshold when searching for the peak point.

Query
:CALCulate:MARKer:PEAK:THReshold:STATe?

Response
<switch>

Parameter
<switch>  Threshold when searching for the peak point
0         Sets the threshold to Off.
1         Sets the threshold to On.
Example of Use

To query the On/Off state of the threshold when searching for the peak point.

```
CALC:MARK:PEAK:THR:STAT?
> 1
```

**:CALCulate:MARKer:PEAK:THReshold:MODE ABOVe|BELow**

Peak Search Mode

Function

This command specifies the detection mode for the threshold value (Peak Search Threshold Level) in peak point detection.

Command

```
:CALCulate:MARKer:PEAK:THReshold:MODE <mode>
```

Parameter

```
<mode>
    ABOVe
    BELow
```

Threshold value detection mode

- Detects only in the range above the threshold value (Default).
- Detects only in the range below the threshold value.

Details

This command is not available during Spurious Emission measurement and when Displayed Segment Mode is Auto.

Not available during Spectrum Emission Mask measurement.

Example of Use

To search for the peak point from the data greater than the threshold value.

```
CALC:MARK:PEAK:THR:MODE ABOV
```
Chapter 2  SCPI Device Message Details

:CALCulate:MARKer:PEAK:THReshold:MODE?
Peak Search Mode Query

Function

This command queries the detection mode for the threshold (Peak Search Threshold Level) when searching for the peak point.

Query

:CALCulate:MARKer:PEAK:THReshold:MODE?

Response

<mode>

Parameter

<mode>  Detection mode for threshold
ABOV  Searches for only the upper side of the threshold
BEL  Searches for only the lower side of the threshold

Example of Use

To query the detection mode for the threshold.
CALC:MARK:PEAK:THR:MODE?
> ABOV
2.5 Signal Search

:CALCulate:DATA:PEAKs[:LOGarithmic]? <threshold>,<resolution>[,<sort>]

All Peak Search and Query

Function

This command queries the frequency (or time) and level of all the peak points in the trace data of the active trace in a lump sum.

Query

:CALCulate:DATA:PEAKs[:LOGarithmic]? <threshold>,<resolution>[,<sort>]

Response

<total_number>,
<level_1>,<freq_1>,
<level_2>,<freq_2>,
...
(In frequency domain)
<total_number>,
<level_1>,<time_1>,
<level_2>,<time_2>,
...
(In time domain)

Parameter

<threshold> Threshold when searching for the peak point

Range

Full width of Y-axis

Resolution

0.01 dB (when scale unit settings are dB-system units.)
0.01 pV (when scale unit settings are V-system units.)
0.01 yW (when scale unit settings are W-system units.)

Suffix code

<table>
<thead>
<tr>
<th>Symbol</th>
<th>Unit</th>
</tr>
</thead>
<tbody>
<tr>
<td>DBM, DM</td>
<td>dBm</td>
</tr>
<tr>
<td>DBMV</td>
<td>dBmV</td>
</tr>
<tr>
<td>DBUG</td>
<td>dBµV</td>
</tr>
<tr>
<td>DBUVE</td>
<td>dBµV (emf)</td>
</tr>
<tr>
<td>DBUV</td>
<td>dBµV/m</td>
</tr>
<tr>
<td>V</td>
<td>V</td>
</tr>
<tr>
<td>MV</td>
<td>mV</td>
</tr>
<tr>
<td>UV</td>
<td>µV</td>
</tr>
<tr>
<td>W</td>
<td>W</td>
</tr>
<tr>
<td>MW</td>
<td>mW</td>
</tr>
</tbody>
</table>
Chapter 2  SCPI Device Message Details

\[
\begin{align*}
\text{UW} & \quad \mu W \\
\text{NW} & \quad nW \\
\text{PW} & \quad pW \\
\text{FW} & \quad fW \\
\end{align*}
\]
Follows the setting of Scale Unit, when omitted. V is used when it is Linear Scale.

\begin{itemize}
  \item \textbf{<resolution>}
    \begin{enumerate}
      \item when Scale Mode is Log.
        \begin{itemize}
          \item Range: 0.001 to 100.000 dB
          \item Suffix code: DB
            dB is used even when omitted.
        \end{itemize}
      \item when Scale Mode is Lin.
        \begin{itemize}
          \item Range: 0.01 to 100.00%
          \item Suffix code: None
        \end{itemize}
    \end{enumerate}
  \item \textbf{<sort>}
    \begin{itemize}
      \item AMPLitude: Outputs in the order of level from the highest.
      \item FREQuency: Outputs in the order of level from lowest (only frequency domain)
      \item TIME: Outputs in the order of time from the earliest (only time domain)
    \end{itemize}
  \item When omitted: Outputs in the order of level from highest.
  \item \textbf{<total_number>}
    Number of the output peak value
  \item \textbf{<level_n>}
    Level value of peak
  \item When marker level display unit are dB-system units.
    \begin{itemize}
      \item Resolution: 0.01 dB
      \item Suffix code: None. Value is returned in the unit specified by Scale Unit.
    \end{itemize}
  \item When marker level display units are V-system units.
    \begin{itemize}
      \item Resolution: 0.01 pV
      \item Suffix code: None. Value is returned in V units.
    \end{itemize}
  \item When marker level display units are W-system units.
    \begin{itemize}
      \item Resolution: 0.01 yW
      \item Suffix code: None. Value is returned in W units.
    \end{itemize}
  \item \textbf{<freq_n>}
    Peak frequency
    \begin{itemize}
      \item resolution: 0.01 Hz
      \item Suffix code: None. Value is returned in Hz units.
    \end{itemize}
\end{itemize}

–999.0 is returned when not measured or an error occurs.
**Signal Search**

- **Peak time**
- **Resolution** 0.01 µs
- **Suffix code** None. Value is returned in s units.
- $-999999999999$ is returned when not measured or an error occurs.

**Example of Use**

To query the frequency and level of the active trace at once.

```plaintext
CALC:DATA:PEAK? -40.000,10.000
```

**:CALCulate:MARKer:PEAK:SORT:Y**

**Search Peaks Sort Y**

**Function**

This command sorts as many markers as the number set in Search Peaks Number by level on the trace.

**Command**

`:CALCulate:MARKer:PEAK:SORT:Y`

**Details**

This command is not available in the following cases:
- During the Spurious Emission measurement AND when Displayed Segment Mode is set to Auto.
- During the Spectrum Emission Mask measurement.
- When Blank is set for the active trace.

**Example of Use**

To sort the markers by level.

```plaintext
CALC:MARK:PEAK:SORT:Y
```
Chapter 2  SCPI Device Message Details

:CALCulate:MARKer:PEAK:SORT:X
Search Peaks Sort X

Function

This command sorts as many markers as the number set in Search Peaks Number by frequency (time) on the trace.

Command

:CALCulate:MARKer:PEAK:SORT:X

Details

This command is not available in the following cases:
- During the Spurious Emission measurement AND when Displayed Segment Mode is set to Auto.
- During the Spectrum Emission Mask measurement.
- When Blank is set for the active trace.

Example of Use

To sort the markers by frequency.
CALC:MARK:PEAK:SORT:X

:CALCulate:MARKer:PEAK:SORT:COUNt <integer>
Search Peaks Number

Function

This command sets the number of searches when executing Search Peaks Sort Y/X.

Command

:CALCulate:MARKer:PEAK:SORT:COUNt <integer>

Parameter

<integer>  Number of searches
Range  1 to 10
Resolution  1
Default  10

Details

This command is not available during Spurious Emission measurement and when Displayed Segment Mode is Auto.
Not available during Spectrum Emission Mask measurement.

Example of Use

To set the search number to 6.
CALC:MARK:PEAK:SORT:COUN 6
:CALCulate:MARKer:PEAK:SORT:COUNT?

Search Peaks Number Query

Function

This command queries the number of searches when executing Search Peaks Sort Y/X.

Query

:CALCulate:MARKer:PEAK:SORT:COUNT?

Response

<integer>

Parameter

<integer> Number of searches
Range 1 to 10
Resolution 1

Example of Use

To query the number of searches.
CALC:MARK:PEAK:SORT:COUN?
> 6
Chapter 2  SCPI Device Message Details

2.6 Trace

Table 2.6-1 lists device messages for trace.

Note:
All commands can be also executed even when Limit is described instead of LLINe.

<table>
<thead>
<tr>
<th>Function</th>
<th>Device Message</th>
</tr>
</thead>
<tbody>
<tr>
<td>Active Trace</td>
<td>:TRACe:ACTive A</td>
</tr>
<tr>
<td></td>
<td>:TRACe:ACTive?</td>
</tr>
<tr>
<td>Trace Write Mode</td>
<td>:TRACe[1]</td>
</tr>
<tr>
<td></td>
<td>:TRACe[1]</td>
</tr>
<tr>
<td>Storage Mode</td>
<td>:TRACe[1]</td>
</tr>
<tr>
<td></td>
<td>OFF</td>
</tr>
<tr>
<td></td>
<td>:TRACe[1]</td>
</tr>
<tr>
<td>Average Count</td>
<td>[:SENSe]:AVERage:COUNT &lt;integer&gt;</td>
</tr>
<tr>
<td></td>
<td>[:SENSe]:AVERage:COUNT?</td>
</tr>
<tr>
<td>Sweep Count Query</td>
<td>:TRACe:SWEep:COUNt?</td>
</tr>
<tr>
<td>Limit Edit</td>
<td>:CALCulate:LLINe[1]</td>
</tr>
<tr>
<td></td>
<td>&lt;x-axis_1&gt;,&lt;ampl_1&gt;,&lt;connected_1&gt;,[,&lt;x-axis_2&gt;,&lt;ampl_2&gt;,&lt;connected_2&gt;],,,[,&lt;x-axis_n&gt;,&lt;ampl_n&gt;,&lt;connected_n&gt;]</td>
</tr>
<tr>
<td></td>
<td>:CALCulate:LLINe[1]</td>
</tr>
<tr>
<td>Limit Type</td>
<td>:CALCulate:LLINe[1]</td>
</tr>
<tr>
<td></td>
<td>:CALCulate:LLINe[1]</td>
</tr>
<tr>
<td>Limit Display</td>
<td>:CALCulate:LLINe[1]</td>
</tr>
<tr>
<td></td>
<td>:CALCulate:LLINe[1]</td>
</tr>
<tr>
<td>Limit Test</td>
<td>:CALCulate:LLINe[1]</td>
</tr>
<tr>
<td></td>
<td>:CALCulate:LLINe[1]</td>
</tr>
<tr>
<td>Limit Test Result</td>
<td>:CALCulate:LLINe[1]</td>
</tr>
<tr>
<td>Margin</td>
<td>:CALCulate:LLINe[1]</td>
</tr>
<tr>
<td></td>
<td>:CALCulate:LLINe[1]</td>
</tr>
<tr>
<td>Margin Value</td>
<td>:CALCulate:LLINe[1]</td>
</tr>
<tr>
<td></td>
<td>:CALCulate:LLINe[1]</td>
</tr>
<tr>
<td>Delete Limit</td>
<td>:CALCulate:LLINe[1]</td>
</tr>
<tr>
<td>Delete All Limits</td>
<td>:CALCulate:LLINe:ALL:DELelete</td>
</tr>
<tr>
<td>Limits Line Type (Amplitude)</td>
<td>:CALCulate:LLINe[1]</td>
</tr>
<tr>
<td></td>
<td>:CALCulate:LLINe:CMODE:AMPLitude?</td>
</tr>
<tr>
<td>Limits Line Type (Frequency)</td>
<td>:CALCulate:LLINe[1]</td>
</tr>
<tr>
<td>Function</td>
<td>Device Message</td>
</tr>
<tr>
<td>--------------------------------</td>
<td>--------------------------------------------------------------------------------</td>
</tr>
<tr>
<td><strong>Save Wave Data</strong></td>
<td>:MEMORY:STOR:TRACe TRACE1</td>
</tr>
<tr>
<td><strong>Save Correction Data</strong></td>
<td>:MEMORY:STOR:TRACe:CORr [&lt;filename&gt;[,&lt;device&gt;]]</td>
</tr>
<tr>
<td><strong>Query Trace Data</strong></td>
<td>:TRACe[:DATA]? TRACE1</td>
</tr>
<tr>
<td><strong>Query Negative Trace Data</strong></td>
<td>:TRACe[:DATA]:NEG? TRACE1</td>
</tr>
<tr>
<td><strong>Query Trace Data Spectrum Emission Mask</strong></td>
<td>:TRACe[:DATA]:SEM[:N</td>
</tr>
<tr>
<td><strong>Query Negative Trace Data Spectrum Emission Mask</strong></td>
<td>:TRACe[:DATA]:SEM[:N</td>
</tr>
<tr>
<td><strong>Binary Data Byte Order</strong></td>
<td>:FORMAT:BORDer NORMal</td>
</tr>
<tr>
<td><strong>Numeric Data Format</strong></td>
<td>:FORMAT[:DATA] ASCII</td>
</tr>
<tr>
<td><strong>Test Trace</strong></td>
<td>:CALCulate:LLINe[1]</td>
</tr>
<tr>
<td><strong>Previous Pt Level Offset</strong></td>
<td>:CALCulate:LLINe[1]</td>
</tr>
<tr>
<td><strong>Mirror Limit</strong></td>
<td>:CALCulate:LLINe[1]</td>
</tr>
<tr>
<td><strong>Create Envelope</strong></td>
<td>:CALCulate:LLINe[1]</td>
</tr>
<tr>
<td><strong>Update Envelope</strong></td>
<td>:CALCulate:LLINe[1]</td>
</tr>
<tr>
<td><strong>Envelope Points</strong></td>
<td>:CALCulate:LLINe[1]</td>
</tr>
<tr>
<td><strong>Envelope Offset</strong></td>
<td>:CALCulate:LLINe[1]</td>
</tr>
<tr>
<td><strong>Envelope Shape</strong></td>
<td>:CALCulate:LLINe[1]</td>
</tr>
<tr>
<td><strong>Save Limit</strong></td>
<td>:MEMORY:STOR:LLINe[1]</td>
</tr>
<tr>
<td><strong>Recall Limit Data File</strong></td>
<td>:MEMORY:LOAD:LLINe[1]</td>
</tr>
<tr>
<td><strong>Delete Limit Data File</strong></td>
<td>:MEMORY:DELETE:LLINe [&lt;filename&gt;][,&lt;device&gt;]</td>
</tr>
<tr>
<td><strong>Delete All Limit Data Files</strong></td>
<td>:MEMORY:DELETE:LLINe:ALL [&lt;device&gt;]</td>
</tr>
<tr>
<td><strong>Delete Waveform Data File</strong></td>
<td>:MEMORY:DELETE:WAVEform &lt;foldername&gt;[,&lt;device&gt;]</td>
</tr>
<tr>
<td><strong>Delete All Waveform Data Files</strong></td>
<td>:MEMORY:DELETE:WAVEform:ALL [,&lt;device&gt;]</td>
</tr>
</tbody>
</table>
Table 2.6-1  Device message for trace (Cont’d)

<table>
<thead>
<tr>
<th>Function</th>
<th>Device Message</th>
</tr>
</thead>
<tbody>
<tr>
<td>Normalize On/Off</td>
<td>:CALCulate:NTData[:STATe] OFF</td>
</tr>
<tr>
<td></td>
<td>:CALCulate:NTData[:STATe]?</td>
</tr>
<tr>
<td>Store Ref.</td>
<td>:TRACE:COPY &lt;source_trace&gt;,&lt;dest_trace&gt;</td>
</tr>
<tr>
<td>Reference Level (Normalize)</td>
<td>:DISPLAY:WINDOW[1]:TRACE:Y[:SCALe]:NRLevel &lt;rel_ampl&gt;</td>
</tr>
<tr>
<td></td>
<td>:DISPLAY:WINDOW[1]:TRACE:Y[:SCALe]:NRLevel?</td>
</tr>
<tr>
<td>Math</td>
<td>:CALCulate:MATH</td>
</tr>
<tr>
<td></td>
<td>&lt;active_trace&gt;,&lt;math_type&gt;[,&lt;operand1_trace&gt;,&lt;operand2_trace&gt;]</td>
</tr>
<tr>
<td></td>
<td>:CALCulate:MATH? &lt;trace&gt;</td>
</tr>
</tbody>
</table>
:TRACe:ACTive A|B|C|D|E|F

Active Trace

Function

This command selects the trace (active trace) to operate the marker.

Command

:TRACe:ACTive <trace>

Parameter

<trace>  Type of trace to set to active.
A  Trace A (Default)
B  Trace B
C  Trace C
D  Trace D
E  Trace E
F  Trace F

Details

This command is not available during Spectrum Emission Mask measurement or Spurious Emission measurement.

Example of Use

To set Trace B to active.
TRAC:ACT B

Related command

This command has the same function as the following command.
:CALCulate:MARKer:TRACe
Chapter 2  SCPI Device Message Details

:TRACe:ACTive?
Active Trace Query

Function

This command queries the trace (active trace) to operate the marker.

Command

:TRACe:ACTive?

Response

<trace>

Parameter

<trace>  Type of trace to be activated
A  Trace A
B  Trace B
C  Trace C
D  Trace D
E  Trace E
F  Trace F

Example of Use

To query the active trace.
TRAC:ACT?
> B
:TRACe[1]|2|3|4|5|6:TYPE WRITe|VIEW|BLANk

Trace Write Mode

Function

This command sets the trace-writing mode.

Command

:TRACe[n]:TYPE <mode>

Parameter

<n>  Target trace
1    Trace A
2    Trace B
3    Trace C
4    Trace D
5    Trace E
6    Trace F
When omitted: Trace A

(mode>  Trace-writing mode
WRITe  Updates the display per measurement (Write mode)
VIEW  Does not update the display per measurement (View mode)
BLANk  Does not display (Blank mode)

Details

This command is not available in the following cases:
• During the Spurious Emission measurement
• During the Spectrum Emission Mask measurement

Example of Use

To update the display of the active trace every time the measurement is performed.
TRAC:TYPE WRIT
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:TRACe[1]|2|3|4|5|6:TYPE?
Trace Write Mode Query

Function
This command queries the writing mode for trace.

Command
:TRACe[n]:TYPE?

Response
<mode>

Parameter
<n> Target trace
1 Trace A
2 Trace B
3 Trace C
4 Trace D
5 Trace E
6 Trace F
When omitted: Trace A

<mode> Trace-writing mode
WRIT Updates the display per measurement (Write mode)
VIEW Does not update the display per measurement (View mode)
BLAN Does not display (Blank mode).

Example of Use
To query the trace-writing mode.
TRACe:TYPE?
> WRIT
### :TRACe[1|2|3|4|5|6]:STORage:MODE

**OFF|MAXHold|AVERage|MINHold|LAVerage**

#### Storage Mode

**Function**

This command sets the storage mode of trace data.

**Command**

`:TRACe[n]:STORage:MODE <mode>`

**Parameter**

- `<n>`: Target trace
  - 1: Trace A
  - 2: Trace B
  - 3: Trace C
  - 4: Trace D
  - 5: Trace E
  - 6: Trace F
  - When omitted: Trace A

- `<mode>`: Storage mode
  - OFF: Does not store trace data.
  - MAXHold: Holds the maximum value.
  - AVERage: Executes Log averaging.
  - MINHold: Holds the minimum value.
  - LAVerage: Executes Linear averaging.

**Details**

Trace B, C, D, E, and F cannot be set during the Spectrum Emission Mask measurement.
Trace B, C, D, E, and F cannot be set during the Spurious Emission measurement.

**Example of Use**

To set the storage mode of Trace B to Average.

```
TRAC2:STOR:MODE AVER
```

**Related command**

This command has the same function as the following commands.

- `[:SENSe]:ACPower:AVERage[:STATe]`
- `[:SENSe]:CHPower:AVERage[:STATe]`
- `[:SENSe]:OBWidth:AVERage[:STATe]`
- `[:SENSe]:SEMask:AVERage[:STATe]`
- `[:SENSe]:BPOWer|:TXPower:AVERage[:STATe]`
- `[:SENSe]:SPURious:AVERage[:STATe]`
:TRACe[1|2|3|4|5|6]:STORage:MODE?
Storage Mode Query

Function

This command queries the storage mode of trace data.

Query

:TRACe[n]:STORage:MODE?

Response

<mode>

Parameter

<n> Target trace
  1 Trace A
  2 Trace B
  3 Trace C
  4 Trace D
  5 Trace E
  6 Trace F
When omitted: Trace A

<mode> Storage mode
  OFF Does not store trace data.
  MAXH Holds the maximum value.
  AVER Executes Log averaging.
  MINH Holds the minimum value.
  LAV Executes Linear averaging.

Example of Use

To query the storage mode of Trace B.
TRACe2:STOR:MODE?
> AVER

Related command

This command has the same function as the following commands.
[:SENSe]:ACPower:AVERage[:STATe]?
[:SENSe]:CHPower:AVERage[:STATe]?
[:SENSe]:OBWidth:AVERage[:STATe]?
[:SENSe]:SEMask:AVERage[:STATe]?
[:SENSe]:BPOWe|:TXPower:AVERage[:STATe]?
[:SENSe]:SPURious:AVERage[:STATe]?
[:SENSe]:AVERage:COUNt <integer>

Average Count

Function

This command sets the storage count.

Command

[:SENSe]:AVERage:COUNt <integer>

Parameter

<integer> Storage count
  Range 2 to 9999
  Default 10

Details

This command is not available during the Spurious Emission measurement.

Example of Use

To set the storage count to 110.
AVER:COUN 110

Command

This command has the same function as the following commands.
[:SENSe]:ACPower:AVERage:COUNt
[:SENSe]:CHPower:AVERage:COUNt
[:SENSe]:OBWidth:AVERage:COUNt
[:SENSe]:SEMask:AVERage:COUNt
[:SENSe]:BPowEr|:TXPower:AVERage:COUNt
[:SENSe]:AVERage:COUNt?

Average Count Query

Function

This command queries the storage count.

Query

[:SENSe]:AVERage:COUNt?

Response

<integer>

Parameter

<integer>  Storage count

Range  2 to 9999

Example of Use

To query the storage count.

AVER:COUN?

> 110

Command

This command has the same function as the following commands.

[:SENSe]:ACPower:AVERage:COUNt?
[:SENSe]:CHPower:AVERage:COUNt?
[:SENSe]:OBWidth:AVERage:COUNt?
[:SENSe]:SEMask:AVERage:COUNt?
[:SENSe]:BPOWer|:TXPower:AVERage:COUNT?
**:TRACe:SWEep:COUNt?**  
Sweep Count Query

**Function**

This command queries the sweep count.

**Query**

**:TRACe:SWEep:COUNt?**

**Response**

<integer>

**Parameter**

<integer>  
Storage count

Range 2 to 9999

**Details**

During the Spectrum Emission Mask measurement, the sweep count is displayed as a percentage in the screen.

Formula to convert into percentage:

Integer / Specified storage count × 100

**Example of Use**

To query the sweep count.

TRAC:SWE:COUN?

> 1
This command sets the Frequency, Amplitude, and Connected to Previous Pt parameters for Limit Points on the specified Limit Line.

**Function**

**Command**

```
:CALCulate:LLINe[1]|2|3|4|5|6:DATA
<x-axis_1>,<ampl_1>,<connected_1>[,<x-axis_2>,<ampl_2>,<connected_2>],,,[,<x-axis_n>,<ampl_n>,<connected_n>]
```

**Parameter**

- `<x-axis_n>`: Frequency Offset
  - Range: 0 to 325 GHz (Fixed/Absolute)
  - Default: Start Frequency (Fixed/Absolute)
  - Resolution: 1 Hz
  - Suffix code: HZ, KHZ, KZ, MHZ, MZ, GHZ, GZ

- `<ampl_n>`: Amplitude
  - Range: –300 to dBm (Fixed/Absolute)
  - Default: Reference Level (Fixed/Absolute)
  - Resolution: 0.01 dB
  - Suffix code: None

- `<connected_n>`: Connected to Previous point
  - OFF|0: Disabled (No Connected)
  - ON|1: Enabled (Connected) (Default)

**Details**

Up to 100 points can be set.

When you try to set more than 100 points, the error message “Insufficient data” is displayed.

When a Limit point’s Frequency value is higher than the other Limit point’s value and this relationship reverses, the order of Limit points changes.

**Example of Use**

To set on Limit line1 to 1 GHz, –20 dBm, and No Connected for Point1, and set to 2 GHz, –30 dBm, and Connected for Point2.

```
CALC:LLIN1:DATA 1000000000,-20,0,2000000000,-30,1
```
:CALCulate:LLINe[1]2|3|4|5|6:DATA?

Limit Edit Query

Function

This command queries the parameter settings for Limit Points on the specified Limit Line.

Query

:CALCulate:LLINe[1]2|3|4|5|6:DATA?

Response

<x-axis_1>,<ampl_1>,<connected_1>,<x-axis_2>,<ampl_2>,<connected_2>,,,,<x-axis_n>,<ampl_n>,<connected_n>

Parameter

<x-axis> Frequency Offset
Range
0 to 325 GHz (Fixed/Absolute)
–100 GHz to 100 GHz (Relative)

<ampl> Amplitude
Range
–300 to 300 dBm (Fixed/Absolute)
–300 to 300 dB (Relative)

<connected> Connected to Previous point
0 Disables (No Connected)
1 Enables (Connected)

Example of Use

To query the setting for Limit Point1 on Limit Line1.
CALC:LLIN:DATA?
> 1000000000,-20.00,0,20000000000,-30,1
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:CALCulate:LLINe[1]|2|3|4|5|6:TYPE UPPer|LOWer

Limit Type

Function

This command sets the Limit Line type to either Upper Limit or Lower Limit.

Command

:CALCulate:LLINe[1]|2|3|4|5|6:TYPE <mode>

Parameter

<mode> Type of Limit Line
  UPPER  Upper Limit (Default)
  LOWer  Lower Limit

Details

References for judging Pass/Fail depend on the types: Upper and Lower. When the type is Upper and the signal is below Limit Line, it is determined as Pass. When the type is Lower and the signal exceeds Limit Line, it is determined as Pass.

Example of Use

To set a type for Limit Line to Lower.
CALC:LLIN:TYPE LOW
:CALCulate:LLINe[1]|2|3|4|5|6:TYPE?

Limit Type Query

Function

This command queries the Limit Line type setting.

Query

:CALCulate:LLINe[1]|2|3|4|5|6:TYPE?

Response

<mode>

Parameter

<mode>
Type of Limit Line
UPP Upper Limit
LOW Lower Limit

Example of Use

To query the Limit Line type setting.
CALC:LLIN:TYPE?
> LOW

:CALCulate:LLINe[1]|2|3|4|5|6:DISPlay OFF|ON|0|1

Limit Display

Function

This command sets the Limit Display to On/Off.

Command

:CALCulate:LLINe[1]|2|3|4|5|6:DISPlay <switch>

Parameter

<switch>
Limit Display On/Off
OFF|0 Limit Line display Off (Default)
ON|1 Limit Line display On

Details

When Limit Display is set to On, Limit Line is displayed on the measurement screens. When Limit Display is set to Off, Limit Line is not displayed on the measurement screens.

Example of Use

To set Limit Display to Off.
CALC:LLIN:DISP OFF
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:CALCulate:LLIne[1]|2|3|4|5|6:DISPlay?
Limit Display Query

Function
This command queries the Limit Display settings.

Query
:CALCulate:LLIne[1]|2|3|4|5|6:DISPlay?

Response
<switch>

Parameter
<switch> Limit Display On/Off
  0 Limit Display Off
  1 Limit Display On

Example of Use
To query the Limit Display setting.
CALC:LLIN:DISP?
> 0

:CALCulate:LLIne[1]|2|3|4|5|6:STATe OFF|ON|0|1
Limit Test

Function
This command selects whether to judge Pass/Fail.

Command
:CALCulate:LLIne[1]|2|3|4|5|6:STATe <switch>

Parameter
<switch> Pass/Fail
  OFF|0 Does not judge Pass/Fail (Default)
  ON|1 Judges Pass/Fail

Example of Use
To judge Pass/Fail.
CALC:LLIN:STAT 1
:CALCulate:LLIN[1]|2|3|4|5|6:STATe?

Limit Test Query

Function
This command queries whether to judge Pass/Fail.

Query
:CALCulate:LLIN[1]|2|3|4|5|6:STATe?

Response
<switch>

Parameter
<switch>          |   Pass/Fail
0                 |   Pass/Fail judgment is Off.
1                 |   Pass/Fail judgment is On.

Example of Use
To query the Pass/Fail judgment.
CALC:LLIN:STAT?
> 1

:CALCulate:LLIN[1]|2|3|4|5|6:FAIL?

Limit Test Result Query

Function
This command queries a result of Pass/Fail judgment.

Query
:CALCulate:LLIN[1]|2|3|4|5|6:FAIL?

Response
<switch>

Parameter
<switch>          |   Result
0                 |   Pass
1                 |   Fail

Example of Use
To query a result of Pass/Fail judgment.
CALC:LLIN:FAIL?
> 0
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:CALCulate:LLINe[1]|2|3|4|5|6:MARGin:STATe OFF|ON|0|1

Margin Function

This command enables/disables the Offset (Margin) function of Limit Line.

Command

:CALCulate:LLINe[1]|2|3|4|5|6:MARGin:STATe <switch>

Parameter

<switch>
OFF|0  Sets the Margin function to Off. (Default)
ON|1   Sets the Margin function to On.

Example of Use

To set the Margin function to On.
CALC:LLIN:MARG:STAT 1

:CALCulate:LLINe[1]|2|3|4|5|6:MARGin:STATe?

Margin Query Function

This command queries the Offset (Margin) function status of Limit Line.

Query

:CALCulate:LLINe[1]|2|3|4|5|6:MARGin:STATe?

Response

<switch>

Parameter

<switch>    Margin function
0           Margin Off
1           Margin On

Example of Use

To query the Margin setting.
CALC:LLIN:MARG:STAT?
> 1
:CALCulate:LLINe[1]|2|3|4|5|6:MARGin <ampl_rel>

Margin Value

Function

This command sets the Offset value of Limit Line.

Command

:CALCulate:LLINe[1]|2|3|4|5|6:MARGin <ampl_rel>

Parameter

<ampl_rel> Offset value
  Range  –40.00 to 0.00 (Upper)
          0.000 to 40.00 (Lower)
  Resolution  0.01 dB
  Unit  dB
  Suffix code  DB
          dB is used when omitted.
  Default  0

Example of Use

To set the Offset value to 10 dB.
CALC:LLIN:MARG 10

:CALCulate:LLINe[1]|2|3|4|5|6:MARGin?

Margin Value Query

Function

This command queries the Offset value of Limit Line.

Query

:CALCulate:LLINe[1]|2|3|4|5|6:MARGin?

Response

<ampl_rel>

Parameter

<ampl_rel> Offset value
  Range  –40.00 to 0.00 (Upper)
          0.00 to 40.00 (Lower)
  Resolution  0.01 dB
  Unit  dB
  Suffix code  DB
Chapter 2  SCPI Device Message Details

Example of Use

To query the Offset value of Limit Line.

```
CALC:LLIN:MARG?
> 10.00
```

**:CALCulate:LLINe[1]|2|3|4|5|6:DELete**

Delete Limit

Function

This command deletes all Limit Points of the currently selected Limit Line.

Command

```
:CALCulate:LLINe[1]|2|3|4|5|6:DELete
```

Example of Use

To delete all Limit Points of the currently selected Limit Line.

```
CALC:LLIN:DEL
```

**:CALCulate:LLINe:ALL:DELete**

Delete All Limits

Function

This command deletes all Limit Points of Limit Lines 1, 2, 3, 4, 5 and 6.

Command

```
:CALCulate:LLINe:ALL:DELete
```

Example of Use

To delete all Limit Points of Limit Lines 1, 2, 3, 4, 5 and 6.

```
CALC:LLIN:ALL:DEL
```
Limits Line Type (Amplitude)

Function
This command sets the vertical axis of Limit Line to represent in absolute or relative values.

Command
:CALCulate:LLINe[1]|2|3|4|5|6:CMODe:AMPLitude <mode>

Parameter
<mode> Vertical axis
FIXed/ABSolute Represent vertical axis in absolute values
RELative Represent vertical axis in relative values (Default)

Example of Use
To represent the vertical axis of Limit Line in absolute values.
CALC:LLIN:CMOD:AMPL ABS
Chapter 2  SCPI Device Message Details

:CALCulate:LLINe[1]|2|3|4|5|6:CMODe:AMPLitude?
Limits Line Type (Amplitude) Query

Function

This command queries whether the vertical axis of Limit Line represents in absolute or relative values.

Query

:CALCulate:LLINe[1]|2|3|4|5|6:CMODe:AMPLitude?

Response

<mode>

Parameter

<mode>  Vertical axis
FIX     Representation in absolute values.
REL     Representation in relative values.

Example of Use

To query the vertical axis setting of Limit Line.
CALC:LLIN:CMOD:AMPL?
> FIX
:CALCulate:LLINe[1]|2|3|4|5|6:CMODe:FREQuency
FIXed|ABSolute|RELative
Limit Line Type (Frequency)

Function
This command sets the horizontal axis of Limit Line to represent in absolute or relative values.

Command
:CALCulate:LLINe[1]|2|3|4|5|6:CMODe:FREQuency <mode>

Parameter

<table>
<thead>
<tr>
<th>&lt;mode&gt;</th>
<th>Representation of setting values for horizontal axis</th>
</tr>
</thead>
<tbody>
<tr>
<td>FIXed/ABSolute</td>
<td>Absolute values</td>
</tr>
<tr>
<td>RELative</td>
<td>Relative values (Default)</td>
</tr>
</tbody>
</table>

Example of Use
To represent the horizontal axis of Limit Line in absolute values.
CALC:LLIN:CMOD:FREQ ABS
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:CALCulate:LLINe[1]|2|3|4|5|6:CMODe:FREQuency?
Limit Line Type (Frequency) Query

Function

This command queries whether the horizontal axis of Limit Line represents in absolute or relative values.

Query

:CALCulate:LLINe[1]|2|3|4|5|6:CMODe:FREQuency?

Response

<mode>

Parameter

<mode>  Representation of setting values for horizontal axis
FIX   Absolute values
REL   Relative values

Example of Use

To query the horizontal axis setting of Limit Line.
CALC:LLIN:CMOD:FREQ?
> FIX
:MMEMory:STORE:TRACe
TRACe1|TRACe2|TRACe3|TRACe4|TRACe5|TRACe6|GVIew|ALL[,<filename>,<device>]]
Save Wave Data

Function

This command saves the waveform data into a CSV file.

Command

:MMEMory:STORE:TRACe <trace>,<filename>[,<device>]]

Parameter

<trace> Trace to be saved
TRACe1 Trace A
TRACe2 Trace B
TRACe3 Trace C
TRACe4 Trace D
TRACe5 Trace E
TRACe6 Trace F
GVIew Gate View
ALL All traces.

<filename> File name to be saved
String of up to 32 characters, not including the extension, enclosed in double quotes (”) or single quotes (’)
The following characters are not available.
\ / : * ? “ ” ‘ ’ < > |
When omitted, it is named “Wave Data date_sequential number.csv”.

<device> Drive name
A,B,D,E,F,...
Defaults to D when omitted.

Details

0 to 99 are added to a file when a file name is omitted. No more file can be saved if 99 files are used.
Files are saved in the following directory of the specified drive.
\Anritsu Corporation\Signal Analyzer\User Data\TraceData\Spectrum Analyzer
Up to 1000 files can be saved in the folder.
Trace A, B, C, D, E, and F cannot be set during the Spectrum Emission Mask measurement.
Trace B, C, D, E, and F cannot be set during the Spurious Emission measurement.
Gate View cannot be set when Gate View is set to Off.
This command is not available when all the traces are set to Blank.

Example of Use
To save the waveform data file “trace” of Trace B into E drive.
\texttt{MMEM:STOR:TRAC TRAC2,"trace",E}

\textbf{:MMEMory:STORe:TRACe:CORRection [<filename>[,<device>]]}
Save Correction Data

\textbf{Function}
This command saves the active trace waveform data as a level frequency correction table in CSV format.

\textbf{Command}
\texttt{:MMEMory:STORe:TRACe:CORRection [<filename>[,<device>]]}

\textbf{Parameter}
\begin{itemize}
  \item \textbf{<filename>}
    \begin{itemize}
      \item File name to be saved
      \item String of up to 32 characters, not including the extension, enclosed in double quotes (") or single quotes (’)
      \item The following characters are not available.
      \begin{itemize}
        \item \texttt{\textbackslash / : * ? ” ’ ‘ < > |}
      \end{itemize}
      \item When omitted, it is named “Corr date\_sequential number.csv”.
    \end{itemize}
  \item \textbf{<device>}
    \begin{itemize}
      \item Drive name
      \item A,B,D,E,F,...
      \item Defaults to D when omitted.
    \end{itemize}
\end{itemize}

\textbf{Details}
\begin{itemize}
  \item This command is available only for MS2830A.
  \item This command is enabled when the Normalize function is set to On.
  \item This command is disabled when Active Trace is Blank.
  \item The saved level frequency correction table can be loaded from the configuration.
    For how to query the level frequency correction table, refer to Chapter 4 “Correction File Recall” in the \textit{MS2690A/MS2691A/MS2692A and MS2830A/MS2840A/MS2850A Signal Analyzer Operation Manual (Mainframe Remote Control)}.
    However, a file cannot be loaded when it includes the correction data exceeding the maximum number 4096 or the level frequency is outside the range of –100 to 100 dB.
\end{itemize}

\textbf{Example of Use}
To save active trace waveform data as a file “trace” in E drive.
\texttt{MMEM:STOR:TRAC:CORR "trace",E}
2.6 Trace

:TRACe[:DATA]?

TRACe1|TRACe2|TRACe3|TRACe4|TRACe5|TRACe6|GVlew

Query Trace Data

Function

This command queries the trace data.

Query

:TRACe[:DATA]? <trace>

Response

<data_1>,<data_2>,...,<data_n>

Parameter

<trace>  Trace to be saved
  TRACe1  Trace A
  TRACe2  Trace B
  TRACe3  Trace C
  TRACe4  Trace D
  TRACe5  Trace E
  TRACe6  Trace F
  GVlew  Gate View
<data_n>  Level data
  Resolution 0.001 dB (At Log scale)
  {Voltage value (V) / Reference level (V)} × 10000
  (At Linear scale)
  -999.0 is returned, when not measured/an error occurs.
  Suffix code None
  Value is returned in dBm units at log scale.
  Value is returned in V units at linear scale.

: If REAL,32, or INTeger,32 is set for :FORMat[:DATA], the output of “# (ASCII format)” is followed by the output of “Range of character string indicating byte length of binary data (ASCII format), “Byte length of binary data (ASCII format)”, and “Trace data string (binary format)”, in this order. In the case of the binary format too, the response message terminator is attached (refer to “1.7.2 SCPI response message format” in the MS2690A/MS2691A/MS2692A and MS2830A/MS2840A/MS2850A Signal Analyzer Operation Manual (Mainframe Remote Control).

Example: :If 1001 point trace data is read out when REAL,32 is set
for :FORMat[:DATA],
> #44004<4004 bytes of data>

the “4” after “#” indicates that “this is followed by 4 characters indicating the binary data length.”“4004” indicates that “this is followed by 4004 bytes of binary data.”
Convert unit

For conversion into dBµV, dBmV, V, W, dBµV (emf), and dBµV/m at log scale, refer to the following.

Impedance 50 Ω: (D: Level data)

- dBµV: D + 106.99
- dBmV: D + 46.99
- V: \(\sqrt{50 \times 10^{(D/10)/1000}}\)
- W: \(10^{(D/10)/1000}\)
- dBµV (emf): D + 106.99 + 6.02
- dBµV/m: D + 106.99

Impedance 75 Ω: (D: Level data)

- dBµV: D + 108.75
- dBmV: D + 48.75
- V: \(\sqrt{75 \times 10^{(D/10)/1000}}\)
- W: \(10^{(D/10)/1000}\)
- dBµV (emf): D + 108.75 + 6.02
- dBµV/m: D + 108.75

Details

This function writes or queries the trace data of the Positive detection, when the detection mode is Positive & Negative (Normal mode).

-999.0 is returned for traces A, B, C, D, E and F while the Spectrum Emission Mask measurement is performed.
-999.0 is returned for traces B, C, D, E and F while the Spurious Emission measurement is performed.
-999.0 is returned for Gate View when Gate View is set to Off.

Example of Use

To query the data of Trace A.

TRAC? TRAC1

> -20.000, -20.231, -21.233, ...
2.6 Trace

:TRACe[:DATA]:NEGative?

TRACe1|TRACe2|TRACe3|TRACe4|TRACe5|TRACe6|GVIew

Query Negative Trace Data

Function

This command queries the trace data of Negative detection when the
detection mode is Pos&Neg (Normal mode).

Query

:TRACe[:DATA]:NEGative? <trace>

Response

<data_1>,<data_2>,...,<data_n>

Parameter

<trace> Trace to be saved

TRACe1 Trace A
TRACe2 Trace B
TRACe3 Trace C
TRACe4 Trace D
TRACe5 Trace E
TRACe6 Trace F
GVIew Gate View

<data_n> Level data line

Resolution

0.001 dB (At Log scale)

{(Voltage value (V) / Reference level (V)) × 10000
(At Linear scale)

–999.0 is returned, when not measured/an error occurs.

Suffix code

None

Value is returned in dBm units at log scale.

Value is returned in V units at linear scale.

If REAL,32, or INTeger,32 is set for :FORMat[:DATA], the output of “# (ASCII format)” is followed by the output of “Range of character string indicating byte length of binary data (ASCII format), “Byte length of binary data (ASCII format),“ and “Trace data string (binary format),” in this order. In the case of the binary format too, the response message terminator is attached (refer to “1.7.2 SCPI response message format” in the MS2690A/MS2691A/MS2692A and MS2830A/MS2840A/MS2850A Signal Analyzer Operation Manual (Mainframe Remote Control).

Example: If 1001 point trace data is read out when REAL,32 is set for :FORMat[:DATA],

> #44004<4004 bytes of data>
the “4” after “#” indicates that “this is followed by 4 characters indicating the binary data length.” “4004” indicates that “this is followed by 4004 bytes of binary data.”

Convert unit
For conversion into dBµV, dBmV, V, W, dBµV (emf), and dBµV/m at log scale, refer to “Convert unit” of “Parameter” of “:TRACe[:DATA]?” commands.

Details
This function queries the trace data of the Negative detection, when the detection mode is Positive & Negative (Normal mode).
–999.0 is returned for traces A, B, C, D, E and F while Spectrum Emission Mask measurement is performed.
–999.0 is returned for traces B, C, D, E and F while Spurious Emission measurement is performed.
–999.0 is returned for Gate View when Gate View is set to Off.

Example of Use
To query the data of Trace A.

```
TRAC:NEG? TRAC1
> -20.000,-20.231,-21.233,...
```
:TRACe[:DATA]:SEMask?

REFerence|LOWer1|LOWer2|LOWer3|LOWer4|LOWer5|LOWer6|UPPer1|UPPer2|UPPer3|UPPer4|UPPer5|UPPer6|ALL

Query Trace Data Spectrum Emission Mask

Function

This command reads trace data for Spectrum Emission Mask measurement.

Query

:TRACe[:DATA]:SEMask? <trace>

Response

<data_1>,<data_2>,...,<data_n>

Parameter

<trace> Trace to save

REFerence Reference trace
LOWer1 Offset1 Lower side trace
LOWer2 Offset2 Lower side trace
LOWer3 Offset3 Lower side trace
LOWer4 Offset4 Lower side trace
LOWer5 Offset5 Lower side trace
LOWer6 Offset6 Lower side trace
UPPer1 Offset1 Lower side trace
UPPer2 Offset2 Lower side trace
UPPer3 Offset3 Lower side trace
UPPer4 Offset4 Lower side trace
UPPer5 Offset5 Lower side trace
UPPer6 Offset6 Lower side trace
ALL Reference and trace of all offsets

<data_n> Level data

Resolution 0.001 dB

Suffix code None, Value is returned in dBm

If REAL,32, or INTeger,32 is set for :FORMat[:DATA], the output of “# (ASCII format)” is followed by the output of “Range of character string indicating byte length of binary data (ASCII format), “Byte length of binary data (ASCII format)”, and “Trace data string (binary format)”, in this order. In the case of the binary format too, the response message terminator is attached (refer to “1.7.2 SCPI response message format” in the MS2690A/MS2691A/MS2692A and MS2830A/MS2840A/MS2850A Signal Analyzer Operation Manual (Mainframe Remote Control).
Example: If 1001 point trace data is read out when REAL,32 is set for :FORMat[:DATA],
> #44004<4004 bytes of data>
the “4” after “#” indicates that “this is followed by 4 characters indicating the binary data length.”“4004” indicates that “this is followed by 4004 bytes of binary data.”

Details

This function reads the Positive trace data when the Detection mode is Positive & Negative (Normal mode). When Spectrum Emission Mask measurement is Off, –999.0 is returned as the trace point minutes and seconds.

For All, the linked data are output in the following sequence:
- Lower6, Lower5, Lower4, Lower3, Lower2, Lower1, Reference, Upper1, Upper2, Upper3, Upper4, Upper5, Upper6

Each segment data count is defined by the trace points.

Example of Use

To read Reference data.

TRAC:SEM? REF
> -20.000,-20.231,-21.233,...
This command reads the Negative Spectrum Emission Mask trace data when the Detection mode is Pos&Neg (Normal mode).

**Query**: 
:TRACe[:DATA]:SEMask:NEGative? <trace>

**Response**: 
<data_1>,<data_2>,...,<data_n>

**Parameter**:

- `<trace>`: Trace to save
  - REFerence: Reference trace
  - LOWer1: Offset1 Lower side trace
  - LOWer2: Offset2 Lower side trace
  - LOWer3: Offset3 Lower side trace
  - LOWer4: Offset4 Lower side trace
  - LOWer5: Offset5 Lower side trace
  - LOWer6: Offset6 Lower side trace
  - UPPer1: Offset1 Lower side trace
  - UPPer2: Offset2 Lower side trace
  - UPPer3: Offset3 Lower side trace
  - UPPer4: Offset4 Lower side trace
  - UPPer5: Offset5 Lower side trace
  - UPPer6: Offset6 Lower side trace
  - ALL: Reference and trace of all offsets

- `<data_n>`: Level data string
  - Resolution: 0.001 dB
  - Suffix code: None, Value is returned in dBm units

If REAL,32, or INTeger,32 is set for :FORMat[:DATA], the output of “# (ASCII format)” is followed by the output of “Range of character string indicating byte length of binary data (ASCII format)”, “Byte length of binary data (ASCII format)”, and “Trace data string (binary format)”, in this order. In the case of the binary format too, the response message terminator is attached (refer to “1.7.2 SCPI response message format” in the MS2690A/MS2691A/MS2692A and MS2830A/MS2840A/MS2850A Signal Analyzer Operation Manual (Mainframe Remote Control).
Example: If 1001 point trace data is read out when REAL,32 is set for :FORMat[:DATA],
> #44004<4004 bytes of data>

the “4” after “#” indicates that “this is followed by 4 characters indicating the binary data length.” “4004” indicates that “this is followed by 4004 bytes of binary data.”

Details

This function reads the Negative trace data when the Detection mode is Positive & Negative (Normal mode). When Spectrum Emission Mask measurement is Off, –999.0 is returned as the trace point minutes and seconds.

For All, the linked data are output in the following sequence:

Lower6, Lower5, Lower4, Lower3, Lower2, Lower1, Reference, Upper1, Upper2, Upper3, Upper4, Upper5, Upper6

Each segment data count is defined by the trace points.

Example of Use

To read Reference data.

TRAC:SEM:NEG? REF
> -20.000,-20.231,-21.233,...
:FORMat:BORDer NORMal|SWAPped

Binary Data Byte Order

Function

This command sets the byte order of the query data when REAL,32 or INTeger,32 is set for
:FORMat[:DATA].

Command

:FORMat:BORDer <border>

Parameter

<border>       Byte order
NORMal         Sets the byte order to big endian (Default).
SWAPped        Sets the byte order to little endian.

Details

This function sets the data arrangement format when data is output in the binary format. In the case of big endian, the data is arranged from the highest byte, and in the case of little endian, from the lowest byte.

For example, in the case of the 4-byte data of 0x01234567, the data is arranged as 01 23 45 67 in the case of big endian, and as 67 45 23 01 in the case of little endian.

Example of Use

To set the byte order to little endian.
FORM:BORD SWAP
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:FORMat:BORDer?
Binary Data Byte Order Query

Function

This command reads the byte order of the query data when REAL,32 or
INTeger,32 is set for
:FORMat[:DATA].

Query

:FORMat:BORDer?

Response

<border>

Parameter

<border>  Byte order
  NORM  Byte order: big endian
  SWAP  Byte order: little endian

Example of Use

To query the byte order.
FORM:BORD?
>  SWAP
:FORMat[:DATA] ASCii|REAL|INTeger[,<length>]

**Numeric Data Format**

**Function**

This command sets the format of the data that is read out with TRACe[:DATA]?

**Command**

:FORMat[:DATA] <format>[,<length>]

**Parameter**

<format>  
Data format  
ASCii  
ASCii format (Default).  
REAL  
32-bit binary floating point format  
INTeger  
32-bit binary fixed point format.  

<length>  
Supplementary setting for selected format  
This can be set only when ASCii is specified for format.  
32  
If REAL is specified for format, the results are returned in the 32-bit floating point format.  
If INTeger is specified for format, the results are returned in the 32-bit fixed point format.  
This can be set only when REAL or INTeger is specified for format.  

When omitted:  
This will be 0 when ASCii is specified for format.  
This will be 32 when REAL or INTeger is specified for format.

**Details**

When REAL is specified for format, the trace data is output in the 32-bit single-precision floating point format specified in IEEE754.

**Example of Use**

To set the trace data format to the ASCii format.

FORM ASC
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:FORMat[:DATA]?
Numeric Data Format Query

Function

This command queries the format of the data that is read out with TRACE[:DATA]?

Query

:FORMat[:DATA]?

Response

<format>,<length>

Parameter

<format>  Data format
ASC       ASCII format.
REAL      32-bit binary floating point format
INT       32-bit binary fixed point format.

<length>  Supplementary setting for selected format
0         Result is sent back in number of significant figures of this instrument.
32        The results are returned in the 32-bit floating point format or the 32-bit fixed point format.

Example of Use

To query the format of the trace data.
FORM?
> REAL, 32
:CALCulate:LLINe[1]|2|3|4|5|6:TRACe <trace>

Test Trace

Function

This command sets the evaluation target trace of the current Limit Line.

Command

:CALCulate:LLINe[1]|2|3|4|5|6:TRACe <Trace>

Parameter

<table>
<thead>
<tr>
<th>&lt;Trace&gt;</th>
<th>Trace to be evaluated</th>
</tr>
</thead>
<tbody>
<tr>
<td>A</td>
<td>Trace A (Default)</td>
</tr>
<tr>
<td>B</td>
<td>Trace B</td>
</tr>
<tr>
<td>C</td>
<td>Trace C</td>
</tr>
<tr>
<td>D</td>
<td>Trace D</td>
</tr>
<tr>
<td>E</td>
<td>Trace E</td>
</tr>
<tr>
<td>F</td>
<td>Trace F</td>
</tr>
<tr>
<td>When omitted</td>
<td>A</td>
</tr>
</tbody>
</table>

Example of Use

To set Trace C of Limit Line3 as an evaluation target.
CALC:LLIN3:TRAC C
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:CALCulate:LLIN[1]|2|3|4|5|6:TRACe?
Test Trace Query

Function

This command queries the evaluation target trace of the current Limit Line.

Query

:CALCulate:LLIN[1]|2|3|4|5|6:TRACe?

Response

<Trace>

Parameter

<Trace> Trace to be evaluated
  A Trace A
  B Trace B
  C Trace C
  D Trace D
  E Trace E
  F Trace F

Example of Use

To query the evaluation target trace of Limit Line3.
CALC:LLIN3:TRAC?
> REAL, 32
**Function**

This command sets the offset from the current Limit point for making linear interpolation between Limit Points.

**Command**

```
:CALCulate:LLINe[1]|2|3|4|5|6:POINt:LEVel:OFFSet
<ampl_1>[,<ampl_2>,,,<ampl_n>]
```

**Parameter**

- `<amp_n>`: Offset level
  - Range: –300.00 to 300.00 dB
  - Resolution: 0.01 dB
  - Unit: dB
  - Suffix code: `DB`
    - dB is used when omitted.
  - Default: 0 dB

**Example of Use**

To set the offset of 3 dB from the current Limit point for making linear interpolation between Limit Points.

```
CALC:LLIN:POIN:OFFS 3,3,3,3,3
```
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:CALCulate:LLINe[1]|2|3|4|5|6:POINt:LEVel:OFFSet?
Previous Pt Level Offset Query

Function

This command queries the specified offset value from the current Limit point for making linear interpolation between Limit Points.

Query

:CALCulate:LLINe[1]|2|3|4|5|6:POINt:LEVel:OFFSet?

Response

<amp_1>[,<amp_1_2>,,,<amp_1_n>]

Parameter

<amp_n> Offset level
Range -300.00 to 300.00 dB
Resolution 0.01 dB
Unit dB

Example of Use

To query the specified offset value from the current Limit point for making linear interpolation between Limit Points.

CALC:LLIN:POIN:LEVel:OFFS?
> 3,3,3,3
Mirror Limit

Function

This command turns on or off the mirroring function that copies the Limit Line settings of the right half to the left half.

Command

*:CALCulate:LLINe[1]|2|3|4|5|6:MIRRor <switch>

Parameter

<switch> Mirroring function
   OFF|0 OFF (Default)
   ON|1 ON

Details

This command is available only when the Limit Line Type (Frequency) is set to Relative.

Example of Use

To set the mirroring function to ON.
*:CALC:LLIN:MIRR ON
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:CALCulate:LLINE[1]|2|3|4|5|6:MIRRor?

Mirror Limit Query

Function

This command queries the setting of the mirroring function that copies the Limit Line settings of the right half to the left half.

Query

:CALCulate:LLINE[1]|2|3|4|5|6:MIRRor?

Response

<switch>

Parameter

<switch> Mirroring function
0 OFF
1 ON

Example of Use

To query the mirroring function setting.

:CALC:LLIN:MIRR?

> 1
:CALCulate:LLINe[1]|2|3|4|5|6:ENVelope:CREate

Create Envelope

Function

This command automatically creates a Limit Line from the current Trace data.

Command

:CALCulate:LLINe[1]|2|3|4|5|6:ENVelope:CREate

Details

This command automatically creates a Limit Line from the current Trace data according to the following settings: Envelope Points, Envelope Offset and Envelope Shape.
This command is unavailable when the Mirror Limit is set to On.

Example of Use

To automatically create a Limit Line.
CALC:LIM:ENV:CRE

:CALCulate:LLINe[1]|2|3|4|5|6:ENVelope:UPDate:Y

Update Envelope

Function

This command automatically updates a Limit Line of the Peak Level that includes a Trace Point evaluated as “Fail”, referring to the current trace data.

Command

:CALCulate:LLINe[1]|2|3|4|5|6:ENVelope:UPDate:Y

Details

This command does not return any results if the Limit Test is not evaluated as “Fail”.
This command is unavailable when the Mirror Limit is set to On.

Example of Use

To automatically update a Limit Point of the Peak Level that includes a Trace Point evaluated as “Fail”.
CALC:LLIN:ENV:UPD:Y
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:CALCulate:LLIne[1]|2|3|4|5|6:ENVelope:POINt <number>

Envelope Points

Function

This command sets the number of Envelope Points for automatically creating a Limit Line from the current Trace Point value.

Command

:CALCulate:LLIne[1]|2|3|4|5|6:ENVelope:POINt <number>

Parameter

<number> The number of Envelope Points

Range 2 to Trace Point (Max 100)

Resolution 1

Default 41

Details

When the Create Envelope function is executed, the set value applies.

Example of Use

To set the number of Envelope Points to 20.

CALC:LLIN:ENV:POIN 20
:CALCulate:LLINe[1]|2|3|4|5|6:ENVelope:POINt?

Envelope Points Query

Function

This command queries the set number of Envelope Points.

Query

:CALCulate:LLINe[1]|2|3|4|5|6:ENVelope:POINt?

Response

<number>

Parameter

<number>  The number of Envelope Points
Range    2 to Trace Point (Max 100)

Example of Use

To query the number of Envelope Points.
CALC:LLIN:ENV:POIN?
> 20
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:CALCulate:LLINe[1]2|3|4|5|6:ENVelope[:LEVel]:OFFSet <amplitude>

Envelope Offset

Function

This command sets the offset level (from the current peak Trace Point to
the Limit Point).

Command

:CALCulate:LLINe[1]2|3|4|5|6:ENVelope[:LEVel]:OFFSet
<amplitude>

Parameter

<amplitude>  Offset level
Range        –300.00 to 300.00 dB
Resolution   0.01 dB
Unit         dB
Default      3.00 dB

Details

When the Create Envelope or Update Envelope function is executed, the
set value applies.

Example of Use

To set the offset level (from the peak Trace Point to the Limit Point) to 3
dB.
CALC:LLIN:ENV:OFFS 3
:CALCulate:LLIne[1|2|3|4|5|6]:ENVelope[:LEVEL]:OFFSet?

Envelope Offset Query

**Function**

This command queries the offset level (from the current peak Trace Point to the Limit Point).

**Query**

:CALCulate:LLIne[1|2|3|4|5|6]:ENVelope[:LEVEL]:OFFSet?

**Response**

<amplitude>

**Parameter**

<amplitude> Offset level

| Range | –300.00 to 300.00 dB |

**Example of Use**

To query the offset level to the Limit Point.

:CALC:LLIN:ENV:OFFS?

> 3
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:CALCulate:LLINe[1]|2|3|4|5|6:ENVelope:SHAPe SQUare|SLOPe

Envelope Shape

Function

This command sets the shape of Limit Lines to be automatically created.

Command

:CALCulate:LLINe[1]|2|3|4|5|6:ENVelope:SHAPe <mode>

Parameter

<mode> Shape of Limit Lines
SQUare Connects Limit Points by vertical and horizontal lines.
SLOPe Connects Limit Points by straight lines. (Default)

Details

This command is unavailable when the Mirror Limit is set to On.

Example of Use

To connect Limit Points by straight lines.
CALC:LLIN:ENV:SHAPE SLOPE
:CALCulate:LLINe[1]|2|3|4|5|6:ENVelope:SHAPe?

Envelope Shape Query

Function

This command queries the shape setting of Limit Lines to be automatically created.

Query

:CALCulate:LLINe[1]|2|3|4|5|6:ENVelope:SHAPe?

Response

<mode>

Parameter

<mode> Shape of the Limit Line
SQU Connects Limit Points by vertical and horizontal lines.
SLOP Connects Limit Points by straight lines. (Default)

Example of Use

To query the shape setting of the Limit Lines.
CALC:LLIN:ENV:SHAPE?
> SLOP


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:MMEMory:STORe:LLINe[1]|2|3|4|5|6 [<filename>[,<device>]]

Save Limit

Function

This command saves the Limit data settings to a CSV file.

Command

:MMEMory:STORe:LLINe[1]|2|3|4|5|6 [,<filename>[,<device>]]

Parameter

- **<filename>**
  
  "Name of file to save"
  
  String of up to 32 characters, not including the extension, enclosed in double quotes (" ) or single quotes ( ’ )
  
  The following characters cannot be used:
  
  \ / : * ? „ ‘ ‘ < > |
  
  When omitted it is saved as a csv file with the following default file name: Limit "Date"="Sequential Number".
  
- **<device>**
  
  Drive name
  
  A,B,D,E,F,...
  
  Defaults to D when omitted.

Details

- When the file name is omitted, a sequential number from 0 to 999 is added to the default file name. When the sequential number reaches 999, no more files can be saved.
- Files are saved to the following directory in the specified drive. \Anritsu Corporation\Signal Analyzer\User Data\Limit
- Up to 1000 files can be stored in the folder.

Example of Use

To save the Limit data "Limit" of Limit3 to E drive.

MMEM:STOR:LLIN3 "Limit",E
**Function**

This command recalls the contents of the Limit data file.

**Command**

```
:MMEMory:LOAD:LLINe[1]|2|3|4|5|6 <filename>[,<device>]
```

**Parameter**

- `<filename>`
  - "Name of file to recall"
  - String of up to 32 characters, not including the extension, enclosed in double quotes ("), or single quotes (’)
  - The following characters cannot be used:
    - \ / : * ? “ ‘ ‘ < > |

- `<device>`
  - Drive name
  - A,B,D,E,F,...
  - Defaults to D when omitted.

**Details**

- This command can recall Limit files in csv, lim, or xml format.
- From the following folder in the specified drive, the specified file is loaded:
  - \Anritsu Corporation\Signal Analyzer\User Data\Limit

**Example of Use**

To load the Limit data file “Limit.csv” from E drive to Limit3.

```
MMEM:LOAD:LLIN3 "Limit.csv",E
```
:MMEMory:DELeTe:LLINe <filename>[,<device>]
Delete Limit Data File

Function
This command deletes the specified Limit data file.

Command
:MMEMory:DELeTe:LLINe <filename>[,<device>]

Parameter

<filename>
"Name of Limit data file to delete"
String of up to 32 characters, not including the extension, enclosed in double quotes (") or single quotes (')
The following characters cannot be used: \ / : * ? " " ' < > |

<device>
Drive name
A,B,D,E,F,...
Defaults to D when omitted.

Details
From the following folder in the specified drive, the specified file is deleted:
\Anritsu Corporation\Signal Analyzer\User Data\Limit

Example of Use
To delete the Limit data file “Limit.csv”.
MMEM:DELLIN "Limit.csv"
:MMEMory:DELeTe:LLINe:ALL [<device>]
Delete All Limit Data Files

Function
This command deletes all Limit data files stored in the specified drive.

Command
:MMEMory:DELeTe:LLINe:DATA:ALL [<device>]

Parameter
<device> Drive name
A,B,D,E,F,...
Defaults to D when omitted.

Details
From the following folder in the specified drive, all Limit Data Files are deleted:
\Anritsu Corporation\Signal Analyzer\User Data\Limit

Example of Use
To delete all Limit data files stored in D drive.
MMEM:DEL:LLIN:ALL
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:MMEMory:DELeTe:WAVEform <foldername>[,<device>]
Delete Waveform Data File

Function
This command deletes the specified Waveform data folder.

Command
:MMEMory:DELeTe:WAVEform <foldername>[,<device>]

Parameter
<filename> "Name of Waveform data folder to delete"
String of up to 32 characters, not including the extension, enclosed in double quotes ("), or single quotes (')
The following characters cannot be used:
\ / : * ? " " ' ' < > |
<device> Drive name
A,B,D,E,F,...
Defaults to D when omitted.

Details
This command deletes a waveform data folder from the following folder in the specified drive:
\Anritsu Corporation\Signal Analyzer\User Data\Waveform

Example of Use
To delete the Waveform data folder "Waveform".
MMEM:DEL:WAVE "Waveform"
:MMEMory:DELe:WAVeform:ALL [<device>]
Delete All Waveform Data Files

Function
This command deletes all Waveform data folders and all files in those folders.

Command
:MMEMory:DELe:WAVeform:ALL [<device>]

Parameter
<device> Drive name
A,B,D,E,F,...
Defaults to D when omitted.

Details
From the following folder in the specified drive, all data folders and all files in those folders are deleted:
\Anritsu Corporation\Signal Analyzer\User Data\Waveform

Example of Use
To delete the Waveform data folders and all files in those folders.
MMEM:DEl:WAVe:ALL

:CALCulate:NTData[:STATe] OFF|ON|0|1
Normalize

Function
This command enables/disables the Normalize function.

Command
:CALCulate:NTData[:STATe] OFF|ON|0|1

Parameter
<switch> Normalize function On/Off
ON|1 Enables the Normalize function
OFF|0 Disables the Normalize function (Default)

Details
This command is available only for MS2830A.
This cannot be executed under the following conditions:
• When Internal Signal Generator Control On/Off is Off.
• When the Math function is other than Off.
• When Store Ref. is not executed.

Example of Use
To enable the Normalize function.
CALC:NTD ON
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:CALCulate:NTData[:STATe]?
Normalize Query

Function
This command queries the On/Off state of the Normalize function.

Query
:CALCulate:NTData[:STATe]?

Response
<switch>

Parameter
<switch> Normalize function On/Off
ON|1 Normalize function is On.
OFF|0 Normalize function is Off.

Details
This command is available only for MS2830A.

Example of Use
To query the On/Off state of the Normalize function.
CALC:NTD?
> 1

:TRACe:COPY <source_trace>,<dest_trace>
Store Ref.

Function
This command copies the target trace to selected trace as Store Ref..

Command
:TRACe:COPY <source_trace>,<dest_trace>

Parameter
<source_trace> Source Trace type
TRACe1 Trace A
TRACe2 Trace B
TRACe3 Trace C
TRACe4 Trace D
TRACe5 Trace E
TRACe6 Trace F

<dest_trace> Destination Trace Type
TRACe1 Trace A
TRACe2 Trace B
TRACe3 Trace C
TRACe4 Trace D
TRACe5 Trace E
TRACe6 Trace F
Details

This command is available only for MS2830A.
The destination trace means the selected trace.
Trace-writing mode where Store Ref. is executed is set to View.

This cannot be executed under the following conditions:
- Internal Signal Generator Control function On/Off is Off.
- Normalize function is On.
- The source trace and destination trace are the same.
- The destination trace is the active trace.
- The source trace is blank.

Store Ref. data is initialized under the following conditions:
- The Internal Signal Generator Control function On/Off is changed.
- The selected trace is changed.
- The Trace type writing mode is changed to Write.
- The number of trace point is changed.
- Center/Start/Stop/Span frequency is changed.
- RBW/VBW is changed.
- The wave detection mode is changed.
- The SPA application software is preset.
- The SPA application software is unloaded.
- The SPA application software is recalled.
- Correction On/Off in the Configuration is changed.

When changing the writing method of the trace on which Store Ref. was executed, use:TRACe[1]|2|3|4|5|6:TYPE.

Example of Use

To copy the trace A data to the trace B as Store Ref.
TRAC:COPY TRAC1,TRAC2
Chapter 2  SCPI Device Message Details

:DISPlay:WINDow[1]:TRACe:Y[:SCALe]:NRLevel <rel_ampl>
Reference Level (Normalize)

Function
This command sets the Reference Level when the Normalize function is performed.

Command
:DISPlay:WINDow[1]:TRACe:Y[:SCALe]:NRLevel <rel_ampl>

Parameter
<rel_ampl>  Reference Level
Range  –120.00 to 50.00 dB
Resolution  0.01 dB
Suffix code  DB, dB is used even when omitted
Default  0 dB

Details
This command is available only for MS2830A.

Example of Use
To set Reference Level to 10 dB.
DISP:WIND:TRAC:Y:NRL 10.00DB

:DISPlay:WINDow[1]:TRACe:Y[:SCALe]:NRLevel?
Reference Level (Normalize) Query

Function
This command queries Reference Level when the Normalize function is performed.

Query
:DISPlay:WINDow[1]:TRACe:Y[:SCALe]:NRLevel?

Response
<rel_ampl>

Parameter
<rel_ampl>  Reference Level
Range  –120.00 to 50.00 dB
Resolution  0.01 dB
Suffix code  None. Value is returned in dB units.

Details
This command is available only for MS2830A.

Example of Use
To query Reference Level.
DISP:WIND:TRAC:Y:NRL?
> 10.00
:CALCulate:MATH
<active_trace>,<math_type>[,<operand1_trace>,<operand2_trace>]

Math

Function

This command performs calculations between traces.

Command

:CALCulate:MATH
<active_trace>,<math_type>[,<operand1_trace>,<operand2_trace>]

Parameter

<active_trace> Type of trace to be activated
    TRACE1 Trace A (Default)
    TRACE2 Trace B
    TRACE3 Trace C
    TRACE4 Trace D
    TRACE5 Trace E
    TRACE6 Trace F

<math_type> Calculation type
    OFF Disables the Math function (Default)
    PDIFFerence Operand1 – Operand2 (Power subtraction)
    PSUM Operand1 + Operand2 (Power addition)
    LDIFFerence Operand1 – Operand2 (Log subtraction)
    LSUM Operand1 + Operand2 (Log addition)

<operand1_trace> Type of trace for Operand1
    TRACE1 Trace A
    TRACE2 Trace B
    TRACE3 Trace C
    TRACE4 Trace D
    TRACE5 Trace E (Default)
    TRACE6 Trace F

When omitted: Trace type for Operand1 is not changed.

<operand2_trace> Type of trace for Operand2
    TRACE1 Trace A
    TRACE2 Trace B
    TRACE3 Trace C
    TRACE4 Trace D
    TRACE5 Trace E
    TRACE6 Trace F (Default)

When omitted: Trace type for Operand2 is not changed.

Details

This command is available only for MS2830A.
This cannot select the calculation type under the following conditions:
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• When the Measure function is On
• When Signal identifier is On
• When the Normalize function is On
• When Gate View is On

When Scale Mode is Linear, calculation type is not set to the Log calculation (LDIFFerence, LSUM).

This cannot set Trace type for Operand1 and Operand2 to active.

Example of Use

To subtract the Trace E power from the Trace C power and to display the result in Trace A.

CALC:MATH TRAC1,PDIF,TRAC3,TRAC5
:CALCulate:MATH? <trace>

Math Query

Function

This command queries the Math setting of trace.

Query

:CALCulate:MATH? <trace>

Response

<math_type>,<operand1_trace>,<operand2_trace>

Parameter

<trace>  Type of trace
  TRACe1  Trace A
  TRACe2  Trace B
  TRACe3  Trace C
  TRACe4  Trace D
  TRACe5  Trace E
  TRACe6  Trace F

<math_type>  Calculation type
  OFF  Disables the Math function (Default)
  PDIFference  Operand1 – Operand2 (Power subtraction)
  PSUM  Operand1 + Operand2 (Power addition)
  LDIFference  Operand1 – Operand2 (Log subtraction)
  LSUM  Operand1 + Operand2 (Log addition)

<operand1_trace>  Type of trace for Operand1
  TRACe1  Trace A
  TRACe2  Trace B
  TRACe3  Trace C
  TRACe4  Trace D
  TRACe5  Trace E
  TRACe6  Trace F

<operand2_trace>  Type of trace for Operand2
  TRACe1  Trace A
  TRACe2  Trace B
  TRACe3  Trace C
  TRACe4  Trace D
  TRACe5  Trace E
  TRACe6  Trace F

Details

This command is available only for MS2830A.

Example of Use

To query the Math setting of Trace A.

CALC:MATH? TRAC1
  > PDIF,TRAC3,TRAC5
Table 2.7-1 lists device messages for sweep/trigger/gate.

<table>
<thead>
<tr>
<th>Function</th>
<th>Device Message</th>
</tr>
</thead>
<tbody>
<tr>
<td><strong>Continuous Measurement</strong></td>
<td>:INITiate:CONTinuous OFF</td>
</tr>
<tr>
<td></td>
<td>:INITiate:CONTinuous?</td>
</tr>
<tr>
<td></td>
<td>:INITiate:MODE:CONTinuous</td>
</tr>
<tr>
<td><strong>Single Measurement</strong></td>
<td>:INITiate:MODE:SINGLE</td>
</tr>
<tr>
<td><strong>Initiate</strong></td>
<td>:INITiate[:IMMediate]</td>
</tr>
<tr>
<td><strong>Single Sweep</strong></td>
<td>:INITiate:SWP</td>
</tr>
<tr>
<td></td>
<td>:INITiate:SWP?</td>
</tr>
<tr>
<td><strong>Sweep Time</strong></td>
<td>[:SENSe]:SWEep:TIME &lt;time&gt;</td>
</tr>
<tr>
<td></td>
<td>[:SENSe]:SWEep:TIME?</td>
</tr>
<tr>
<td><strong>Sweep Time Auto/Manual</strong></td>
<td>[:SENSe]:SWEep:TIME:AUTO OFF</td>
</tr>
<tr>
<td></td>
<td>[:SENSe]:SWEep:TIME:AUTO?</td>
</tr>
<tr>
<td><strong>Auto Sweep Time Mode</strong></td>
<td>[:SENSe]:SWEep:TIME:AUTO:MODE NORMal</td>
</tr>
<tr>
<td></td>
<td>[:SENSe]:SWEep:TIME:AUTO:MODE?</td>
</tr>
<tr>
<td><strong>Trace Point</strong></td>
<td>[:SENSe]:SWEep:POINts &lt;integer&gt;</td>
</tr>
<tr>
<td></td>
<td>[:SENSe]:SWEep:POINts?</td>
</tr>
<tr>
<td><strong>Auto Sweep Type Select Rules</strong></td>
<td>[:SENSe]:SWEep[:TYPE][:AUTO]:RULes DRANge</td>
</tr>
<tr>
<td></td>
<td>[:SENSe]:SWEep[:TYPE][:AUTO]:RULes?</td>
</tr>
<tr>
<td><strong>Sweep Type Select Rules FFT Width</strong></td>
<td>[:SENSe]:SWEep[:TYPE][:AUTO]:RULes:FFT:WIDTh &lt;freq&gt;</td>
</tr>
<tr>
<td></td>
<td>[:SENSe]:SWEep[:TYPE][:AUTO]:RULes:FFT:WIDTh?</td>
</tr>
<tr>
<td><strong>Sweep Type Select Rules Real FFT Width</strong></td>
<td>[:SENSe]:SWEep[:TYPE][:AUTO]:RULes:RTYPe?</td>
</tr>
<tr>
<td><strong>Detection Mode</strong></td>
<td>[:SENSe]:DETector[:FUNCTION] NORMal</td>
</tr>
<tr>
<td></td>
<td>[:SENSe]:DETector[:FUNCTION]?</td>
</tr>
<tr>
<td></td>
<td>:CALCulate:DETector[:FUNCTION] NORMal</td>
</tr>
<tr>
<td></td>
<td>:CALCulate:DETector[:FUNCTION]?</td>
</tr>
<tr>
<td><strong>Trigger Switch</strong></td>
<td>:TRIGger[:SEQuence][:STATe] ON</td>
</tr>
<tr>
<td></td>
<td>:TRIGger[:SEQuence][:STATe]?</td>
</tr>
<tr>
<td><strong>Trigger Source</strong></td>
<td>:TRIGger[:SEQuence]:SOURce EXTernal</td>
</tr>
<tr>
<td></td>
<td>:TRIGger[:SEQuence]:SOURce?</td>
</tr>
<tr>
<td><strong>Log Scale Video Trigger Level</strong></td>
<td>:TRIGger[:SEQuence]:VIDeo:LEVel[:LOGarithmic] &lt;level&gt;</td>
</tr>
<tr>
<td></td>
<td>:TRIGger[:SEQuence]:VIDeo:LEVel[:LOGarithmic]?</td>
</tr>
<tr>
<td><strong>Linear Scale Video Trigger Level</strong></td>
<td>:TRIGger[:SEQuence]:VIDeo:LEVel:LINear &lt;level&gt;</td>
</tr>
</tbody>
</table>
| | :TRIGger[:SEQuence]:VIDeo:LEVel:LINear?
## 2.7 Sweep/Trigger/Gate

Table 2.7-1 Device messages for sweep/trigger/gate (Cont’d)

<table>
<thead>
<tr>
<th>Function</th>
<th>Device Message</th>
</tr>
</thead>
<tbody>
<tr>
<td>Wide IF Trigger Level</td>
<td>:TRIgger[:SEQUence]:WIF</td>
</tr>
<tr>
<td></td>
<td>:TRIgger[:SEQUence]:WIF</td>
</tr>
<tr>
<td>Trigger Slope</td>
<td>:TRIgger[:SEQUence]:EXternal[1</td>
</tr>
<tr>
<td></td>
<td>:TRIgger[:SEQUence]:WIF</td>
</tr>
<tr>
<td></td>
<td>:TRIgger[:SEQUence]:WIF</td>
</tr>
<tr>
<td></td>
<td>:TRIgger[:SEQUence]:VIDeo:SLOPe POSitive</td>
</tr>
<tr>
<td></td>
<td>:TRIgger[:SEQUence]:VIDeo:SLOPe?</td>
</tr>
<tr>
<td>Trigger Delay</td>
<td>:TRIgger[:SEQUence]:EXternal[1</td>
</tr>
<tr>
<td></td>
<td>:TRIgger[:SEQUence]:EXternal[1</td>
</tr>
<tr>
<td></td>
<td>:TRIgger[:SEQUence]:WIF</td>
</tr>
<tr>
<td></td>
<td>:TRIgger[:SEQUence]:WIF</td>
</tr>
<tr>
<td></td>
<td>:TRIgger[:SEQUence]:VIDeo:DELay &lt;time&gt;</td>
</tr>
<tr>
<td></td>
<td>:TRIgger[:SEQUence]:VIDeo:DELay?</td>
</tr>
<tr>
<td>Trigger Hold</td>
<td>:TRIgger[:SEQUence]:HOLDoff &lt;time&gt;</td>
</tr>
<tr>
<td></td>
<td>:TRIgger[:SEQUence]:HOLDoff?</td>
</tr>
<tr>
<td>Trigger Hold On/Off</td>
<td>:TRIgger[:SEQUence]:HOLDoff:STATe OFF</td>
</tr>
<tr>
<td></td>
<td>:TRIgger[:SEQUence]:HOLDoff:STATe?</td>
</tr>
<tr>
<td>Frame Trigger Period</td>
<td>:TRIgger[:SEQUence]:FRAMe:PERiod &lt;time&gt;</td>
</tr>
<tr>
<td></td>
<td>:TRIgger[:SEQUence]:FRAMe:PERiod?</td>
</tr>
<tr>
<td>Frame Sync Source</td>
<td>:TRIgger[:SEQUence]:FRAMe:SYNC EXternal[1</td>
</tr>
<tr>
<td></td>
<td>:TRIgger[:SEQUence]:FRAMe:SYNC?</td>
</tr>
<tr>
<td>Frame Sync Offset</td>
<td>:TRIgger[:SEQUence]:FRAMe:OFFSet &lt;time&gt;</td>
</tr>
<tr>
<td></td>
<td>:TRIgger[:SEQUence]:FRAMe:OFFSet?</td>
</tr>
<tr>
<td>Gate Sweep</td>
<td>[:SENSe]:SWEep:EGATe[:STATe] ON</td>
</tr>
<tr>
<td></td>
<td>[:SENSe]:SWEep:EGATe[:STATe]?</td>
</tr>
<tr>
<td>Gate Source</td>
<td>[:SENSe]:SWEep:EGATe:SOURce EXternal[1</td>
</tr>
<tr>
<td></td>
<td>[:SENSe]:SWEep:EGATe:SOURce?</td>
</tr>
<tr>
<td>Gate Level</td>
<td>[:SENSe]:SWEep:EGATe:WIF</td>
</tr>
<tr>
<td></td>
<td>[:SENSe]:SWEep:EGATe:WIF</td>
</tr>
<tr>
<td>Gate Slope</td>
<td>[:SENSe]:SWEep:EGATe:SLOPe POSitive</td>
</tr>
<tr>
<td></td>
<td>[:SENSe]:SWEep:EGATe:SLOPe?</td>
</tr>
<tr>
<td>Gate Delay</td>
<td>[:SENSe]:SWEep:EGATe:DELay &lt;time&gt;</td>
</tr>
<tr>
<td></td>
<td>[:SENSe]:SWEep:EGATe:DELay?</td>
</tr>
<tr>
<td>Gate Length</td>
<td>[:SENSe]:SWEep:EGATe:LENGth &lt;time&gt;</td>
</tr>
<tr>
<td></td>
<td>[:SENSe]:SWEep:EGATe:LENGth?</td>
</tr>
<tr>
<td>Gate View</td>
<td>[:SENSe]:SWEep:EGATe:VIEW[:STATe] ON</td>
</tr>
<tr>
<td></td>
<td>[:SENSe]:SWEep:EGATe:VIEW[:STATe]?</td>
</tr>
<tr>
<td>Gate View Sweep Time</td>
<td>[:SENSe]:SWEep:EGATe[:VIEW]:TIME &lt;time&gt;</td>
</tr>
<tr>
<td></td>
<td>[:SENSe]:SWEep:EGATe[:VIEW]:TIME?</td>
</tr>
</tbody>
</table>
### Chapter 2  SCPI Device Message Details

#### Table 2.7-1  Device messages for sweep/trigger/gate (Cont’d)

<table>
<thead>
<tr>
<th>Function</th>
<th>Device Message</th>
</tr>
</thead>
<tbody>
<tr>
<td><strong>Gate View Resolution</strong></td>
<td>[:SENSe]:SWEep:EGAtE:VIEW:BANDwidth[:RESolution]:AUTO ON</td>
</tr>
<tr>
<td><strong>Bandwidth</strong></td>
<td>[:SENSe]:SWEep:EGAtE:VIEW:BANDwidth[:RESolution]:AUTO?</td>
</tr>
<tr>
<td><strong>Auto/Manual</strong></td>
<td>[:SENSe]:SWEep:EGAtE:VIEW:BANDwidth[:RESolution] &lt;freq&gt;</td>
</tr>
<tr>
<td><strong>Gate View Video Bandwidth</strong></td>
<td>[:SENSe]:SWEep:EGAtE:VIEW:BANDwidth:VIDeo:AUTO ON</td>
</tr>
<tr>
<td><strong>Auto/Manual</strong></td>
<td>[:SENSe]:SWEep:EGAtE:VIEW:BANDwidth:VIDeo:AUTO?</td>
</tr>
<tr>
<td><strong>Gate View Video Bandwidth</strong></td>
<td>[:SENSe]:SWEep:EGAtE:VIEW:BANDwidth:VIDeo &lt;freq&gt;</td>
</tr>
<tr>
<td><strong>Gate View Detection Mode</strong></td>
<td>[:SENSe]:SWEep:EGAtE:VIEW:DETector[:FUNCTION] NORMal</td>
</tr>
<tr>
<td><strong>Gate View Trace Point</strong></td>
<td>[:SENSe]:SWEep:EGAtE:VIEW:POINTS &lt;integer&gt;</td>
</tr>
<tr>
<td><strong>Gate View Frequency Mode</strong></td>
<td>[:SENSe]:SWEep:EGAtE:VIEW:FREQuency:AUTO ON</td>
</tr>
<tr>
<td><strong>Gate View Frequency</strong></td>
<td>[:SENSe]:SWEep:EGAtE:VIEW:FREQuency:AUTO?</td>
</tr>
<tr>
<td><strong>Gate Hold</strong></td>
<td>[:SENSe]:SWEep:EGAtE:HOLDoff &lt;time&gt;</td>
</tr>
<tr>
<td><strong>Gate Hold On/Off</strong></td>
<td>[:SENSe]:SWEep:EGAtE:HOLDoff:STATe OFF</td>
</tr>
<tr>
<td><strong>Restart Sweep</strong></td>
<td>:INITiate:RESTart</td>
</tr>
<tr>
<td><strong>Stop Sweep</strong></td>
<td>:ABORt</td>
</tr>
</tbody>
</table>
:INITiate:CONTinuous OFF|ON|0|1
Continuous Measurement

Function
This command switches Single/Continuous of the sweep mode.

Command
:INITiate:CONTinuous <switch>

Parameter
<switch>            Sweep mode
  0|OFF             Single measurement
  1|ON              Continuous measurement (Default)

Example of Use
To execute the Continuous measurement.
INIT:CONT ON

:INITiate:CONTinuous?
Continuous Measurement Query

Function
This command queries the sweep mode.

Query
:INITiate:CONTinuous?

Response
<switch>

Parameter
<switch>            Sweep mode
  0              Single measurement
  1              Continuous measurement

Example of Use
To query the sweep mode.
INIT:CONT?
> 0
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:INITiate:MODE:CONTinuous
Continuous Measurement

Function
This command sets the sweep mode to Continuous and starts continuous sweep.

Command
:INITiate:MODE:CONTinuous

Example of Use
To start continuous sweep.
INIT:MODE:CONT

:INITiate:MODE:SINGle
Single Measurement

Function
This command sets the sweep mode to Single and starts the single sweep.

Command
:INITiate:MODE:SINGle

Example of Use
To start single sweep.
INIT:MODE:SING

Details
To read out the measurement results after executing this command, perform the synchronization control using the “*WAI” command.
:INITiate[:IMMediate]

Initiate

Function

This command starts sweeping in the presently set sweep mode.

Command

:INITiate[:IMMediate]

Details

To read out the measurement results after executing this command, perform the synchronization control using the "*WAI" command.

Example of Use

To start sweeping in the presently set sweep mode.
INIT:IMM

:INITiate:SWP

Single Sweep

Function

This command sets the sweep mode to single and starts single sweep.

Command

:INITiate:SWP

Details

Starting sweep with this function makes the following command wait without being processed until sweep is finished.

Example of Use

To start single sweep.
INIT:SWP
**Chapter 2  SCPI Device Message Details**

**:INITiate:SWP?**

Single Sweep Query

Function

This command queries the sweep status (sweep done/during sweep).

Query

**:INITiate:SWP?**

Response

<status>

Parameter

<status>  
0  Sweep done  
1  During sweep

Example of Use

To query the sweep status.

INIT:SWP?

> 0

[:SENSe]:SWEep:TIME <time>

Sweep Time

Function

This command sets the sweep time. Each parameter is specified in accordance with the already-specified frequency axis or time axis measurement.

Command

[:SENSe]:SWEep:TIME <time>

Parameter

<time>  
Sweep Time  
Range  

<table>
<thead>
<tr>
<th>Model</th>
<th>Frequency Axis</th>
<th>Time Axis</th>
</tr>
</thead>
<tbody>
<tr>
<td>MS269xA</td>
<td>2 ms to 1000 s</td>
<td>1 µs to 1000 s</td>
</tr>
<tr>
<td>MS2830A</td>
<td>1 ms to 1000 s</td>
<td>1 µs to 1000 s</td>
</tr>
<tr>
<td>MS2840A</td>
<td>1 ms to 1000 s</td>
<td>1 µs to 1000 s</td>
</tr>
<tr>
<td>MS2850A</td>
<td>1 ms to 1000 s</td>
<td>1 µs to 1000 s</td>
</tr>
</tbody>
</table>

Suffix code

None

Value is returned in s units.

Default

<table>
<thead>
<tr>
<th>Model</th>
<th>Value</th>
</tr>
</thead>
<tbody>
<tr>
<td>MS269xA</td>
<td>10 ms (MS2690A)</td>
</tr>
<tr>
<td></td>
<td>135 ms (MS2691A)</td>
</tr>
</tbody>
</table>
This command is not available when in FFT sweep.
This command is not available during the Spectrum Emission Mask or the Spurious Emission measurement.
This command is not available when Internal Signal Generator Control On/Off is On.

Example of Use

To set the sweep time to 100 ms.

```
SWE:TIME 0.1
```

Related command

This command has the same function as the following commands.

```
[:SENSe]:ACPower:SWEep:TIME
[:SENSe]:CHPower:SWEep:TIME
[:SENSe]:OBWidth:SWEep:TIME
[:SENSe]:BFOWer|TXPower:SWEep:TIME
```
[:SENSe]:SWEep:TIME?
Sweep Time Query

Function
This command queries the sweep time. Each parameter is specified in accordance with the already-specified frequency axis or time axis measurement.

Query
[:SENSe]:SWEep:TIME?

Response
<time>

Parameter
<time>  Sweep time
Range
[MS269xA]  2 ms to 1000 s (in frequency axis measurement)
            1 µs to 1000 s (in time axis measurement)
[MS2830A]  1 ms to 1000 s (in frequency axis measurement)
            1 µs to 1000 s (in time axis measurement)
[MS2840A]  1 ms to 1000 s (in frequency axis measurement)
            1 µs to 1000 s (in time axis measurement)
[MS2850A]  1 ms to 1000 s (in frequency axis measurement)
            1 µs to 1000 s (in time axis measurement)
Suffix code None. S is used when omitted.

Example of Use
To query the sweep time.
SWE:TIME?
> 0.100000

Related command
This command has the same function as the following commands.
[:SENSe]:ACPower:SWEep:TIME?
[:SENSe]:CHPower:SWEep:TIME?
[:SENSe]:OBWidth:SWEep:TIME?
[:SENSe]:BFOWe:TXPower:SWEep:TIME?
[:SENSe]:SWEep:TIME:AUTO OFF|ON|0|1

Sweep Time Auto/Manual

Function

This command enables/disables the automatic sweep time setting function. Each parameter is specified in accordance with the already-specified frequency axis or time axis measurement.

Command

[:SENSe]:SWEep:TIME:AUTO <switch>

Parameter

<switch>  
0|OFF  
Disables the automatic sweep time setting function.  
1|ON  
Enables the automatic sweep time setting function (Default).

Details

Fixed to Auto when in FFT measurement (MS2830A, MS2840A, MS2850A).  
This command is not available during the Spectrum Emission Mask or the Spurious Emission measurement.  
This command is not available when Internal Signal Generator Control On/Off is On.

Example of Use

To enable the automatic sweep time setting function.  
SWE:TIME:AUTO ON

Related command

This command has the same function as the following commands.  
[:SENSe]:ACPwr:SWEep:TIME:AUTO  
[:SENSe]:CHPower:SWEep:TIME:AUTO  
[:SENSe]:OBWidth:SWEep:TIME:AUTO
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[:SENSe]:SWEep:TIME:AUTO?
Sweep Time Auto/Manual Query

Function

This command queries the On/Off state of the automatic sweep time setting function. Each parameter is specified in accordance with the already-specified frequency axis or time axis measurement.

Query

[:SENSe]:SWEep:TIME:AUTO?

Response

<switch>

Parameter

<switch> Automatic sweep time setting function On/Off

0 Automatic sweep time setting function is disabled.

1 Automatic sweep time setting function is enabled (Default).

Example of Use

To query the On/Off state of the automatic sweep time setting function.
SWE:TIME:AUTO?
> 1

Related command

This command has the same function as the following commands.
[:SENSe]:ACPower:SWEep:TIME:AUTO?
[:SENSe]:CHPower:SWEep:TIME:AUTO?
[:SENSe]:OBWidth:SWEep:TIME:AUTO?

[:SENSe]:SWEep:TIME:AUTO:MODE NORMAL|FAST
Auto Sweep Time Mode

Function

This command sets the sweep mode (Fast or Normal) when the automatic sweep time setting function is enabled.

Command

[:SENSe]:SWEep:TIME:AUTO:MODE <mode>
2.7 Sweep/Trigger/Gate

Parameter

<mode> Sweep time
FAST Fast sweep mode (MS2830A, MS2840A, MS2850A, Default)
NORM Normal sweep mode (MS269xA Default)

Details

This command is not available during the Spectrum Emission Mask measurement.

Example of Use

To set the sweep time to normal sweep mode.
SWE:TIME:AUTO:MODE NORM

[:SENSe]:SWEep:TIME:AUTO:MODE?
Auto Sweep Time Mode Query

Function

This command queries the sweep mode (Fast or Normal) when the automatic sweep time setting function is enabled.

Query

[:SENSe]:SWEep:TIME:AUTO:MODE?

Response

<mode>

Parameter

<mode> Sweep time
FAST Fast sweep mode
NORM Normal sweep mode (Default)

Example of Use

To query the sweep mode.
SWE:TIME:AUTO:MODE?
> NORM
[:SENSe]:SWEep:POINts <integer>
Trace Point

Function
This command sets the number of the trace display points. When Couple Time/Freq. Domain is set to Off, each parameter is specified in accordance with the already-specified frequency axis or time axis measurement.

Command
[:SENSe]:SWEep:POINts <integer>

Parameter

<table>
<thead>
<tr>
<th>&lt;integer&gt;</th>
<th>Number of trace display points</th>
</tr>
</thead>
<tbody>
<tr>
<td>11</td>
<td>11 points</td>
</tr>
<tr>
<td>21</td>
<td>21 points</td>
</tr>
<tr>
<td>41</td>
<td>41 points</td>
</tr>
<tr>
<td>51</td>
<td>51 points</td>
</tr>
<tr>
<td>101</td>
<td>101 points</td>
</tr>
<tr>
<td>201</td>
<td>201 points</td>
</tr>
<tr>
<td>251</td>
<td>251 points</td>
</tr>
<tr>
<td>401</td>
<td>401 points</td>
</tr>
<tr>
<td>501</td>
<td>501 points</td>
</tr>
<tr>
<td>1001</td>
<td>1001 points</td>
</tr>
<tr>
<td>2001</td>
<td>2001 points</td>
</tr>
<tr>
<td>5001</td>
<td>5001 points</td>
</tr>
<tr>
<td>10001</td>
<td>10001 points (Default)</td>
</tr>
<tr>
<td>30001</td>
<td>30001 points</td>
</tr>
</tbody>
</table>

Details
This command is not available during the Spectrum Emission Mask measurement or Spurious Emission measurement.
When Internal Signal Generator Control On/Off is On, the number of trace display points is set to 201 points.
When Noise Floor Reduction is On, the maximum trace display point number of MS2840A is 10001.

Example of Use
To set the number of trace display points to 2001 points.
SWE:POIN 2001

Related command
This command has the same function as the following commands.
[:SENSe]:ACPower:SWEep:POINts
[:SENSe]:CHPower:SWEep:POINts
[:SENSe]:OBWidth:SWEep:POINts
`:SENSe`:SWEep:POINts?

Trace Point Query

**Function**
This command queries the number of trace display points. When Couple Time/Freq. Domain is set to Off, each parameter is specified in accordance with the already-specified frequency axis or time axis measurement.

**Query**
`:SENSe`:SWEep:POINts?

**Response**
<integer>

**Parameter**
<integer> Number of trace display points
11 11 points
21 21 points
41 41 points
51 51 points
101 101 points
201 201 points
251 251 points
401 401 points
501 501 points
1001 1001 points
2001 2001 points
5001 5001 points
10001 10001 points
30001 30001 points

**Example of Use**
To query the number of trace display points.
SWE:POIN?
> 2001

**Related command**
This command has the same function as the following commands.
`:SENSe`:ACPower:SWEep:POINts?
`:SENSe`:CHPower:SWEep:POINts?
`:SENSe`:OBWidth:SWEep:POINts?
[:SENSe]:SWEep[:TYPE][[:AUTO]:RULes
DRANge|SPEed|OSWeep|PSWeep|PFFT
Auto Sweep Type Select Rules

Function

This command sets the rule for switching between sweep and FFT during measurement.

Command

[:SENSe]:SWEep[:TYPE][[:AUTO]:RULes <rules>

Parameter

<rules>  Switching rules
  DRANge   Selects sweep/FFT prioritizing dynamic range.
  SPEed    Selects sweep/FFT prioritizing measurement speed.
  OSWeep   Uses only sweep.
  PSWeep   Prioritizes sweep for selection. Uses FFT only for RBW that cannot be measured by sweep.
  PFFT     Prioritizes FFT for selection. Uses sweep only for RBW that cannot be measured by FFT.

Details

This command is not available for MS269x Series.
Uses 40 kHz or lower for the FFT width when DRANge is specified.
Uses 2 MHz or lower for the FFT width when SPEed is specified.
Uses 40 kHz or lower for the FFT width when PSWeep is specified.
The specified width is used as the FFT width on a priority basis, but it is automatically changed by the SPAN/RBW/VBW measurement conditions.
The setting is fixed to OSWeep during time domain (0 span).
Fixed to OSWeep when Gate Sweep is On.
Fixed to OSWeep when Sweep Time (Auto/Manual) is Manual.
Fixed to OSWeep when in Spurious Emission measurement.
Fixed to OSWeep when Internal Signal Generator Control On/Off is On.

Example of Use

To give priority to dynamic range for the sweep/FFT switch rule.
SWE:RUL DRAN
[:SENSe]:SWEep[:TYPE][:AUTO]:RULes?
Auto Sweep Type Select Rules Query

Function
This command queries the rule for switching between sweep and FFT during measurement.

Query
[:SENSe]:SWEep[:TYPE][:AUTO]:RULes?

Response
<rules>

Parameter
<rules>
Switching rules
DRAN
Selects sweep/FFT prioritizing dynamic range.
SPE
Selects sweep/FFT prioritizing measurement speed.
OSW
Uses only sweep.
PSW
Prioritizes sweep for selection. Uses FFT only for RBW that cannot be measured by sweep.
PFFT
Prioritizes FFT for selection. Uses sweep only for RBW that cannot be measured by FFT.

Details
This command is not available for MS269x Series.

Example of Use
To query the rule for switching between sweep and FFT.
SWE:RUL?
> DRAN
[:SENSe]:SWEep[:TYPE][:AUTO]:RULEs:FFT:WIDTh <freq>

Sweep Type Select Rules FFT Width

Function

This command sets the FFT width when FFT Priority is selected, for the sweep/FFT Switching rules during measurement.

Command

[:SENSe]:SWEep[:TYPE][:AUTO]:RULEs:FFT:WIDTh <freq>

Parameter

<table>
<thead>
<tr>
<th>&lt;freq&gt;</th>
<th>FFT width</th>
</tr>
</thead>
<tbody>
<tr>
<td>Range</td>
<td>40 kHz or 2 MHz</td>
</tr>
<tr>
<td>Resolution</td>
<td>1 Hz</td>
</tr>
<tr>
<td>Suffix code</td>
<td>HZ, KHZ, KZ, MHZ, MZ, GHZ, GZ</td>
</tr>
</tbody>
</table>

Hz is used when omitted.

Default

40 kHz

Details

This command is not available for MS269x Series.
When a value other than 40 kHz or 2 MHz is set, the value is rounded off to the smaller value and set.
This command is available only when FFT Priority is selected for Auto Sweep Type Rules.
The specified width is used as the FFT width on a priority basis, but it is automatically changed by the SPAN/RBW/VBW measurement conditions.

Example of Use

To set FFT width to 40 kHz.

SWE:RULE:FFT:WIDT 40KHZ
[:SENSe]:SWEep[:TYPE][:AUTO]:RULes:FFT:WIDTh?

Sweep Type Select Rules FFT Width Query

Function

This command queries the FFT width when FFT Priority is selected, for the sweep/FFT Switching rules during measurement.

Query

[:SENSe]:SWEep[:TYPE][:AUTO]:RULes:FFT:WIDTh?

Response

<freq>

Parameter

<freq>              FFT width
  Range            40 kHz or 2 MHz
  Resolution       1 Hz
  Suffix code      HZ, KHZ, KZ, MHZ, MZ, GHZ, GZ
                   Hz is used when omitted.

Details

This command is not available for MS269x Series.
The specified width is used as the FFT width on a priority basis, but it is automatically changed by the SPAN/RBW/VBW measurement conditions.
This command queries the set value. To use the FFT width that is actually used, use the following:
[:SENSe]:SWEep[:TYPE][:AUTO]:RULes:FFT:RWIDth?

Example of Use

To query FFT width.
SWE:RUL:FFT:WIDT?
> 40000
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[:SENSe]:SWEep[:TYPE][:AUTO]:RULes:FFT:RWIDth?
Sweep Type Select Rules Real FFT Width Query

Function

This command queries the FFT width that is actually used for the sweep/FFT switch rule during measurement.

Query

[:SENSe]:SWEep[:TYPE][:AUTO]:RULes:FFT:RWIDth?

Response

<freq>

Parameter

<freq>    FFT width
          Range    40 kHz or 2 MHz
          Resolution    1 Hz
          Suffix code    None. Value is returned in Hz units.

Details

This command is not available for MS269x Series.
The specified width is used as the FFT width on a priority basis, but it is automatically changed by the SPAN/RBW/VBW measurement conditions.
This command queries the FFT width that is actually used.

Example of Use

To query the FFT width that is actually used.

SWE:RUL:FFT:RWID?
> 40000
[:SENSe]:SWEep[:TYPE]:AUTO]:RULes:RTYPe?
Sweep Type Select Rules Real Type Query

Function

This command queries the sweep mode (sweep or FFT) that is executed during measurement.

Query

[:SENSe]:SWEep[:TYPE][AUTO]:RULes:RTYPe?

Response

<type>

Parameter

<type>  
SWE  
FFT

Sweep mode  
Performs measurement using sweep.  
Performs measurement using FFT.

Details

This command is not available for MS269x Series.

Example of Use

To query the sweep type used for measurement under the current setting.
SWE:RUL:RTYP?
> FFT
[:SENSe]:DETector[:FUNCtion]
NORMal|POSitive|SAMPlE|NEGative|RMS|QPEak|CAVerage|CRMS

Detection Mode

Function

This command selects the waveform pattern detection mode. When Couple Time/Freq. Domain is set to Off, each parameter is specified in accordance with the already-specified frequency axis or time axis measurement.

Command

[:SENSe]:DETector[:FUNCtion] <det>

Parameter

<det> Detection mode selection.

- NORMal Simultaneous positive and negative peak detection (Default)
- POSitive Positive peak detection
- NEGative Negative peak detection
- SAMPlE Sample detection
- RMS RMS detection

This following functions are available when MS2830A-016/116, MS2840A-016/116 is installed.

- QPEak QP detection
- CAVerage CISPR Average detection
- CRMS RMS Average detection

Details

The set detection mode is applied to all traces.

This command is not available during the Spectrum Emission Mask measurement or the Spurious Emission measurement.

QPEak, CAVerage, and CRMS cannot be set when the Measure function is set to On.

QPEak, CAVerage, and CRMS cannot be set when the Gate View function is set to On.

When QPEak, CAVerage, and CRMS are set, RBW MODE changes from Normal to CISPR.

Example of Use

To set the detection mode to Positive peak detection.

DET POS
Related command

This command has the same function as the following commands.

[:SENSe]:ACPower:DETector[:FUNCTION]
[:SENSe]:CHPower:DETector[:FUNCTION]
[:SENSe]:OBWidth:DETector[:FUNCTION]
:CALCulate:DETector[:FUNCTION]
:CALCulate:ACPower:DETector[:FUNCTION]
:CALCulate:CHPower:DETector[:FUNCTION]
:CALCulate:OBWidth:DETector[:FUNCTION]

[:SENSe]:DETector[:FUNCTION]?
Detection Mode Query

Function

This command selects the detection mode of the waveform pattern. When
Couple Time/Freq. Domain is set to Off, each parameter is specified in
accordance with the already-specified frequency axis or time axis
measurement.

Query

[:SENSe]:DETector[:FUNCTION]?

Response

<det>

Parameter

<det>  Detection mode selection
   NORM  Simultaneous positive and negative peak
detection (Default)
   POS   Positive peak detection
   NEG   Negative peak detection
   SAMP  Sample detection
   RMS   RMS detection
   QPE   QP detection
   CAV   CISPR Average detection
   CRMS  RMS Average detection

Details

The set detection mode applies to all traces.
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#### Example of Use

To query the detection mode.

```
DET?
> POS
```

#### Related command

This command has the same function as the following commands.

- `[:SENSe]:ACPower:DETector[:FUNCTION]?`
- `[:SENSe]:CHPower:DETector[:FUNCTION]?`
- `[:SENSe]:OBWidth:DETector[:FUNCTION]`
- `:CALCulate:DETector[:FUNCTION]`
- `:CALCulate:ACPower:DETector[:FUNCTION]`
- `:CALCulate:CHPower:DETector[:FUNCTION]`
- `:CALCulate:OBWidth:DETector[:FUNCTION]`

### :CALCulate:DETector[:FUNCTION]

**Normal|Positive|Sample|Negative|RMS|QPeak|CAverage|CRMS**

#### Detection Mode

This command selects the detection mode of the waveform pattern.

When Couple Time/Freq. Domain is set to Off, each parameter is specified in accordance with the already-specified frequency axis or time axis measurement. Refer to `[:SENSe]:DETector[:FUNCTION]`.

#### Related command

This command has the same function as the following commands.

- `[:SENSe]:DETector[:FUNCTION]`
- `[:SENSe]:ACPower:DETector[:FUNCTION]`
- `[:SENSe]:CHPower:DETector[:FUNCTION]`
- `[:SENSe]:OBWidth:DETector[:FUNCTION]`
- `:CALCulate:ACPower:DETector[:FUNCTION]`
- `:CALCulate:CHPower:DETector[:FUNCTION]`
- `:CALCulate:OBWidth:DETector[:FUNCTION]`
:CALCulate:DETector[:FUNCTION]?
Detection Mode Query

Function

This command selects the detection mode of the waveform pattern. When Couple Time/Freq. Domain is set to Off, each parameter is specified in accordance with the already-specified frequency axis or time axis measurement. Refer to [:SENSe]:DETector[:FUNCTION]?

Related command

This command has the same function as the following commands.
[:SENSe]:DETector[:FUNCTION]?
[:SENSe]:ACPower:DETector[:FUNCTION]?
[:SENSe]:CHPower:DETector[:FUNCTION]?
[:SENSe]:OBWidth:DETector[:FUNCTION]?
:CALCulate:ACPower:DETector[:FUNCTION]?
:CALCulate:CHPower:DETector[:FUNCTION]?
:CALCulate:OBWidth:DETector[:FUNCTION]?

:TRIGger[:SEQUence][:STATe] ON|OFF|1|0
Trigger Switch

Function

This command sets the trigger sweep to On/Off.

Command

:TRIGger[:SEQUence][:STATe] <switch>

Parameter

<switch> Trigger sweep ON/OFF
OFF|0 Does not perform trigger sweep.
ON|1 Performs trigger sweep.

Details

This command is not available when Internal Signal Generator Control On/Off is On.

Example of Use

To set to wait for a sweep trigger.
TRIG ON
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:TRIGger[:SEQuence][:STATe]?
Trigger Switch Query

Function
This command queries the On/Off state of the trigger sweep.

Query
:TRIGger[:SEQuence][:STATe]?

Response
<switch>

Parameter
<switch>  Trigger sweep On/Off
  0  Does not perform trigger sweep.
  1  Performs trigger sweep.

Example of Use
To query the On/Off state of the trigger sweep.
TRIG?
> 0

:TRIGger[:SEQuence]:SOURce
EXTernal[1|2]|EXT2|IMMediate|WIF|RF Burst|VIDeo|SG|BBIF|FRAMe
Trigger Source

Function
This command selects trigger source.

Command
:TRIGger[:SEQuence]:SOURce <source>

Parameter
<source>  Trigger signal source

[MS269xA]
  EXTernal[1]  External input (External)
  IMMediate  Free run
  WIF|RF Burst  Wide bandwidth IF detection (Wide IF Video)
  VIDeo  Video detection (Video)
  SG  SG Marker
  BBIF  Baseband Interface (BBIF)
### [MS2830A], [MS2840A]
- **EXTernal[1]**: External input (External)
- **IMMediate**: Free run
- **WIF|RFBurst**: Wide bandwidth IF detection (Wide IF Video)
- **VIDeo**: Video detection (Video)
- **SG**: SG Marker
- **FRAME**: Frame period trigger

### [MS2850A]
- **EXTernal[1]**: External input 1 (External 1)
- **EXTernal2|EXT2**: External input 2 (External 2)
- **IMMediate**: Free run
- **WIF|RFBurst**: Wide bandwidth IF detection (Wide IF Video)
- **VIDeo**: Video detection (Video)
- **SG**: SG Marker
- **FRAME**: Frame period trigger

### Details
**[MS269xA]**
SG marker trigger can be selected only when the Option 020/120 Vector Signal Generator is installed.
BBIF trigger cannot be selected only when the Option 040/140 Baseband Interface Unit is not installed or the software package is Ver.6.00.00 or later.

**[MS2830A], [MS2840A]**
SG marker trigger can be selected only when the Option 020/120/021/121 Vector Signal Generator is installed.

**[MS2850A]**
External input 2 (External 2) can be selected only for MS2850A.

### Example of Use
To set the trigger signal source to video trigger.

```
TRIG:SOUR VID
```

### Related command
This command has the same function as the following commands.

- `:TRIGger:ACPower[:SEQUence]:SOURce`
- `:TRIGger:CHPower[:SEQUence]:SOURce`
- `:TRIGger:OBWidth[:SEQUence]:SOURce`
- `:TRIGger:SEMask[:SEQUence]:SOURce`
- `:TRIGger:BPOWer|:TXPower[:SEQUence]:SOURce`
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:TRIGger[:SEQUence]:SOURce?
Trigger Source Query

Function
This command queries the trigger source.

Query
:TRIGger[:SEQUence]:SOURce?

Response
<source>

Parameter
<source> Trigger signal source

[MS269xA]
- **EXT** External input (External)
- **IMM** Free run
- **WIF** Wide bandwidth IF detection (Wide IF Video)
- **VID** Video detection (Video)
- **SG** SG Marker
- **BBIF** Baseband Interface (BBIF)

[MS2830A], [MS2840A]
- **EXT** External input (External)
- **IMM** Free run
- **WIF** Wide bandwidth IF detection (Wide IF Video)
- **VID** Video detection (Video)
- **SG** SG Marker
- **FRAM** Frame period trigger

[MS2850A]
- **EXT** External input 1 (External)
- **EXT2** External input 2 (External 2)
- **IMM** Free run
- **WIF** Wide bandwidth IF detection (Wide IF Video)
- **VID** Video detection (Video)
- **SG** SG Marker
- **FRAM** Frame period trigger

Example of Use
To query the trigger signal source.
TRIG:SOUR?
> VID

Related command
This command has the same function as the following commands.
:TRIGger:ACPower[:SEQUence]:SOURce?
:TRIGger:CHPower[:SEQUence]:SOURce?
:TRIGger:OBWidth[:SEQUence]:SOURce?
:TRIGger:SEMask[:SEQUence]:SOURce?
Log Scale Video Trigger Level

Function

This command sets the threshold value of the level where trigger sweep starts.

Command

:TRIGger[:SEQUence]:VIDeo:LEVel[:LOGarithmic] <level>

Parameter

<level> Threshold value of level where trigger sweep starts.
Range –150 to +50 dBm
Resolution 1 dB
Suffix code DBM, DM
Default –40 dBm

Example of Use

To set the threshold value of the level where trigger sweep starts to –10 dBm.
TRIG:VID:LEV –10DBM
Chapter 2  SCPI Device Message Details

:TRIGger[:SEQuence]:VIDeo:LEVel[:LOGarithmic]?
Log Scale Video Trigger Level Query

Function
This command queries the threshold of the level where trigger sweep starts in video trigger in Log scale mode.

Query
:TRIGger[:SEQuence]:VIDeo:LEVel[:LOGarithmic]?

Response

Parameter

Example of Use
To query the threshold of the level where trigger sweep starts.
TRIG:VID:LEV?
> –10

:TRIGger[:SEQuence]:VIDeo:LEVel:LINear <level>
Linear Scale Video Trigger Level

Function
This command sets the threshold value of the level where trigger sweep starts.

Command
:TRIGger[:SEQuence]:VIDeo:LEVel:LINear <level>

Parameter

Example of Use
To set the threshold of the level where trigger sweep starts to 50%.
TRIG:VID:LEV:LIN 50
:TRIGger[:SEQUence]:VIDeo:LEVel:LINear?
Linear Scale Video Trigger Level Query

Function
This command queries the threshold of the level where trigger sweep starts in video trigger in Linear scale mode.

Query
:TRIGger[:SEQUence]:VIDeo:LEVel:LINear?

Response
<level>

Parameter
<level>  Threshold of the level where trigger sweep starts
When the trigger signal source is video detection (Video) and in Linear scale mode.
Range 0 to 100%
Resolution 1%
Suffix code None. Value is returned in % units.

Example of Use
To query the threshold of the level where trigger sweep starts.
TRIG:VID:LEV:LIN?
> 50
**Chapter 2  SCPI Device Message Details**

:TRIGger[:SEQuence]:WIF|:RFBurst:LEVel:ABSolute <level>

Wide IF Trigger Level

**Function**

This command sets the threshold of the level where trigger sweep starts in Wide IF Video trigger.

**Command**

:TRIGger[:SEQuence]:WIF|:RFBurst:LEVel:ABSolute <level>

**Parameter**

<level>  
Threshold value of level where trigger sweep starts  
Range -60 to 50 dBm  
Resolution 1 dB  
Default -20 dBm

**Example of Use**

To set the threshold of the level where trigger sweep starts to 10 dBm.  
TRIG:WIF:LEV:ABS 10

:TRIGger[:SEQuence]:WIF|:RFBurst:LEVel:ABSolute?

Wide IF Trigger Level Query

**Function**

This command queries the threshold of the level where trigger sweep starts in Wide IF Video trigger.

**Query**

:TRIGger[:SEQuence]:WIF|:RFBurst:LEVel:ABSolute?

**Response**

<level>

**Parameter**

<level>  
Threshold of the level where trigger sweep starts  
Range -60 to 50 dBm  
Resolution 1 dB  
Suffix code None. Value is returned in dBm units

**Example of Use**

To query the threshold of the level where trigger sweep starts.  
TRIG:WIF:LEV:ABS?  
> 10
Sweep/Trigger/Gate

:TRIGGER[:SEQUENCE]:EXTERNAL[1|2]:SLOPE POSitive|NEGative

Trigger Slope

Function

This command sets the trigger detection mode (rise/fall).

Command

:TRIGGER[:SEQUENCE]:EXTERNAL[1|2]:SLOPE <mode>

Parameter

<mode> Trigger detection mode

POSitive Detects at the rising edge (Default)

NEGative Detects at the falling edge

Details

This function selects the trigger detection mode when the trigger signal source is video detection (Video), wideband IF detection (Wide IF Video), external input (External), SG Marker, or Baseband Interface (BBIF).

Example of Use

To detect at the rising edge.

TRIG:EXT:SLOP POS

Related command

This command has the same function as the following commands.

:TRIGGER[:SEQUENCE]:WIF|:RFBURST:SLOPE

:TRIGGER[:SEQUENCE]:VIDEO:SLOPE
Chapter 2  SCPI Device Message Details

:TRIGger[:SEQUence]:EXTernal[1|2]:SLOPe?
Trigger Slope Query

Function

This command queries the trigger detection mode (rise/fall).

Query

:TRIGger[:SEQUence]:EXTernal[1|2]:SLOPe?

Response

<mode>

Parameter

<mode>  Trigger detection mode
  POS     Detects at the rising edge
  NEG     Detects at the rising edge

Details

This function queries the detection mode for the trigger when the trigger signal source is video detection (Video), wide bandwidth IF detection (Wide IF Video), external input (External), SG marker (SG Marker), or Baseband Interface (BBIF).

Example of Use

To query the trigger detection mode.
TRIG:EXT:SLOP?
> POS

Related command

This command has the same function as the following commands.
:TRIGger[:SEQUence]:WIF|:RFBurst:SLOPe?
:TRIGger[:SEQUence]:VIDeo:SLOPe?
:**TRIgger[:SEQuence]:WIF|:RFBurst:SLOPe** POSitive|NEGative
Trigger Slope

**Function**

This command sets the detection mode for the trigger (rise/fall).
Refer to

:`TRIgger[:SEQuence]:EXTernal[1|2]:SLOPe`

**Related command**

This command has the same function as the following commands.

:`TRIgger[:SEQuence]:EXTernal[1|2]:SLOPe`

:`TRIgger[:SEQuence]:VIDeo:SLOPe`

:**TRIgger[:SEQuence]:WIF|:RFBurst:SLOPe?**
Trigger Slope Query

**Function**

This command queries the detection mode for the trigger (rise/fall).
Refer to

:`TRIgger[:SEQuence]:EXTernal[1|2]:SLOPe?`

**Related command**

This command has the same function as the following commands.

:`TRIgger[:SEQuence]:EXTernal[1|2]:SLOPe?`

:`TRIgger[:SEQuence]:VIDeo:SLOPe?`

:**TRIgger[:SEQuence]:VIDeo:SLOPe** POSitive|NEGative
Trigger Slope

**Function**

This command sets the detection mode for the trigger (rise/fall).
Refer to

:`TRIgger[:SEQuence]:EXTernal[1|2]:SLOPe`

**Related command**

This command has the same function as the following commands.

:`TRIgger[:SEQuence]:EXTernal[1|2]:SLOPe`

:`TRIgger[:SEQuence]:WIF|:RFBurst:SLOPe`
**Chapter 2  SCPI Device Message Details**

:TRIGger[:SEQUence]:VIDeo:SLOPe?

Trigger Slope Query

**Function**

This command queries the detection mode for the trigger (rise/fall). Refer to

:TRIGger[:SEQUence]:EXTernal[1|2]:SLOPe?

**Related command**

This command has the same function as the following commands.

:TRIGger[:SEQUence]:EXTernal[1|2]:SLOPe?

:TRIGger[:SEQUence]:WIF|:RFBurst:SLOPe?

---

:TRIGger[:SEQUence]:EXTernal[1|2]:DELay <time>

Trigger Delay

**Function**

This command sets the delay from the trigger occurrence point to sweep start.

**Command**

:TRIGger[:SEQUence]:EXTernal[1|2]:DELay <time>

**Parameter**

<table>
<thead>
<tr>
<th>Parameter</th>
<th>Description</th>
</tr>
</thead>
<tbody>
<tr>
<td>&lt;time&gt;</td>
<td>Delay time to start gating</td>
</tr>
<tr>
<td>Range</td>
<td>–1 to 1 s</td>
</tr>
<tr>
<td>Resolution</td>
<td>20 ns</td>
</tr>
<tr>
<td>Suffix Code</td>
<td>NS, US, MS, S</td>
</tr>
<tr>
<td></td>
<td>S is used when omitted.</td>
</tr>
<tr>
<td>Default</td>
<td>0 ns</td>
</tr>
</tbody>
</table>

**Example of Use**

To set the trigger delay time to 20 ms.

TRIG:EXT:DEL 20MS

**Related command**

This command has the same function as the following commands.

:TRIGger[:SEQUence]:WIF|:RFBurst:DELay

:TRIGger[:SEQUence]:VIDeo:DELay
:TRIGger[:SEQuence]:EXTernal[1|2]:DELay?

Trigger Delay Query

Function

This command queries the delay from the trigger occurrence point to sweep start.

Query

:TRIGger[:SEQuence]:EXTernal[1|2]:DELay?

Response

<time>

Parameter

<time> Delay time to the time when the gate starts.

Range -1 to 1 s

Resolution 20 ns

Suffix code None. Value is returned in S units.

Example of Use

To query the trigger delay time.

TRIG:EXT:DEL?

> 0.02000000

Related command

This command has the same function as the following commands.

:TRIGger[:SEQuence]:WIF|:RFBurst:DELay?

:TRIGger[:SEQuence]:VIDeo:DELay

:TRIGger[:SEQuence]:WIF|:RFBurst:DELay <time>

Trigger Delay

Function

This command sets the delay time from generating the trigger to starting the sweep. Refer to

:TRIGger[:SEQuence]:EXTernal[1|2]:DELay

Related command

This command has the same function as the following commands.

:TRIGger[:SEQuence]:EXTernal[1|2]:DELay

:TRIGger[:SEQuence]:VIDeo:DELay
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:TRIGger[:SEQuence]:WIF|:RF Burst:DELay?

Trigger Delay Query

Function

This command queries the delay time from generating the trigger to starting the sweep. Refer to
:TRIGger[:SEQUence]:EXTernal[1|2]:DELay?.

Related command

This command has the same function as the following commands.
:TRIGger[:SEQUence]:EXTernal[1|2]:DELay?
:TRIGger[:SEQUence]:VIDeo:DELay?

:TRIGger[:SEQuence]:VIDeo:DELay <time>

Trigger Delay

Function

This command sets the delay time from generating the trigger to starting the sweep. Refer to
:TRIGger[:SEQUence]:EXTernal[1|2]:DELay

Related command

This command has the same function as the following commands.
:TRIGger[:SEQUence]:EXTernal[1|2]:DELay
:TRIGger[:SEQUence]:WIF|:RF Burst:DELay

:TRIGger[:SEQuence]:VIDeo:DELay?

Trigger Delay Query

Function

This command sets the delay time from generating the trigger to starting the sweep. Refer to
:TRIGger[:SEQUence]:EXTernal[1|2]:DELay?

Related command

This command has the same function as the following commands.
:TRIGger[:SEQUence]:EXTernal[1|2]:DELay?
:TRIGger[:SEQUence]:WIF|:RF Burst:DELay?
:TRIGger[:SEQuence]:HOLDoff <time>

Trigger Hold

Function

This command sets the time during which trigger input is disabled for a set time, from the first trigger input until the next trigger input.

Command

:TRIGger[:SEQuence]:HOLDoff <time>

Parameter

<time>  Offset time
Range 0 to 1 s
Resolution 10 ns
Suffix code NS, US, MS, S
S is used when the suffix code is omitted.
Default 100 µs

Details

This command is not available for MS269x Series.
The Trigger Hold (ON/OFF) function is set to ON when the value is changed with this function.
This function cannot be set in the case of video trigger.

Example of Use

To set the trigger input disable time to 100 ms.
TRIG:HOLD 100MS
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:TRIGger[:SEQuence]:HOLDoff?
Trigger Hold Query

Function
This command queries the time during which trigger input is disabled for a set time from the first trigger input until the next trigger input.

Query
TRIGger[:SEQuence]:HOLDoff?

Response
<time>

Parameter
<time>  Offset time
  Range    0 to 1 s
  Resolution 10 ns
  Suffix code None. Value is returned in s units.
  Default  100 µs

Details
This command is not available for MS269x Series.

Example of Use
To query the gate input disable time.
TRIG:HOLD?
> 0.02000000

:TRIGger[:SEQuence]:HOLDoff:STATe OFF|ON|0|1
Trigger Hold On/Off

Function
This command sets on/off the function to disable trigger input for a set time, from the first trigger input until the next trigger input.

Command
:TRIGger[:SEQuence]:HOLDoff:STATe <switch>

Parameter
<switch>  Trigger Hold On/Off
  ON|1  Sets the Trigger Hold function to On.
  OFF|0  Sets the Trigger Hold function to Off.
### Details

This command is not available for MS269x Series.
The Trigger (On/Off) function is automatically set to On when this function is set to On.
This function cannot be set in the case of video trigger.

### Example of Use

To set the trigger input disable time setting to On.

```
TRIG:HOLD:STAT ON
```

### :TRIGger[:SEQuence]:HOLDoff:STATe?

**Trigger Hold On/Off Query**

**Function**

This command queries the on/off setting of the function to disable trigger input for a set time, from the first trigger input until the next trigger input.

**Query**

`:TRIGger[:SEQuence]:HOLDoff:STATe?`

**Response**

```
<switch>
```

**Parameter**

```
<switch>  
1  Trigger Hold On/Off
0  Trigger Hold is Off.
```

### Details

This command is not available for MS269x Series.

### Example of Use

To query the trigger input disable time setting.

```
TRIG:HOLD:STAT?
> 1
```
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:TRIGger[:SEQUence]:FRAME:PERiod <time>

Frame Trigger Period

Function

This command sets the trigger occurrence period of the frame trigger.

Command

:TRIGger[:SEQUence]:FRAME:PERiod <time>

Parameter

<time>  Frame trigger
    Range  1 µs to 1 s
    Resolution  10 ns
    Suffix code  NS, US, MS, S
                S is used when the suffix code is omitted.
    Default  10 ms

Details

This command is not available for MS269x Series.
This setting is shared by the trigger signal and gate signal. The same value is also used when frame trigger is selected as the gate signal source for gate sweep.

Example of Use

To set the frame trigger occurrence period to 10 ms.
TRIG:FRAM:PER 10MS
:TRIGger[:SEQuence]:FRAMe:PERiod?
Frame Trigger Period Query

Function
This command queries the frame trigger occurrence period.

Query
:TRIGger[:SEQuence]:FRAMe:PERiod?

Response
<time>

Parameter
<time>                         Delay time until gate start
  Range            1 µs to 1 s
  Resolution      10 ns
  Suffix code     None. Value is returned in s units.

Details
This command is not available for MS269x Series.
This setting is shared by the trigger signal and gate signal. The same value is also used when frame trigger is selected as the gate signal source for gate sweep.

Example of Use
To query the frame trigger occurrence period.
TRIG:FRAM:PER?
> 0.02000000
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:TRIGger[:SEQuence]:FRAMe:SYNC
EXTernal[1|2]|EXT2|IMMediate|Off|WIF|RF Burst
Frame Sync Source

Function

This command selects the synchronized signal source for frame trigger start.

Command

:TRIGger[:SEQuence]:FRAMe:SYNC <sync>

Parameter

<sync>  Synchronized signal source
       EXTernal[1]  External input 1 (External 1)
       EXTernal2|EXT2  External input 2 (External 2)
       IMMediate|Off  Free run
       WIF|RF Burst  Wideband IF detection (Wide IF Video)

Details

This command is not available for MS269x Series.
This setting is shared by the trigger signal and gate signal. The same value is also used when frame trigger is selected as the gate signal source for gate sweep.
External input 2 (External 2) can be selected only for MS2850A.

Example of Use

To set the frame trigger synchronized source to Wide IF Video trigger.
TRIG:FRAM:SYNC WIF
:TRIGger[:SEQuence]:FRAMe:SYNC?
Frame Sync Source Query

Function
This command queries the synchronization signal source for frame trigger start.

Query
:TRIGger[:SEQuence]:FRAMe:SYNC?

Response
<sync>

Parameter
<sync>  Synchronized signal source
  EXT  External input 1 (External 1)
  EXT2  External input 2 (External 2)
  IMM  Free run
  WIF  Wideband IF detection (Wide IF Video)

Example of Use
To query the frame trigger synchronized signal source.
TRIG:FRAM:SYNC?
> WIF
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:TRIGger[:SEQuence]:FRAME:OFFSet <time>
Frame Sync Offset

Function
This command sets the offset time from frame trigger occurrence signal source input until the frame trigger occurrence.

Command
:TRIGger[:SEQuence]:FRAME:OFFSet <time>

Parameter

<table>
<thead>
<tr>
<th>&lt;time&gt;</th>
<th>Offset time</th>
</tr>
</thead>
<tbody>
<tr>
<td>Range</td>
<td>0 to 1 s</td>
</tr>
<tr>
<td>Resolution</td>
<td>10 ns</td>
</tr>
<tr>
<td>Suffix code</td>
<td>NS, US, MS, S</td>
</tr>
<tr>
<td></td>
<td>S is used when the suffix code is omitted.</td>
</tr>
<tr>
<td>Default</td>
<td>0 s</td>
</tr>
</tbody>
</table>

Details
This command is not available for MS269x Series.
This setting is shared by the trigger signal and gate signal. The same value is also used when frame trigger is selected as the gate signal source for gate sweep.

Example of Use
To set the frame trigger occurrence offset time to 100 ms.

TRIG:FRAM:OFFS 100MS
:TRIGger[:SEQuence]:FRAME:OFFSet?
Frame Sync Offset Query

Function
This command queries the offset time from the frame trigger occurrence signal source input until the frame trigger occurrence.

Query
:TRIGger[:SEQuence]:FRAME:OFFSet?

Response
<time>

Parameter
<time> Offset time
  Range 0 to 1 s
  Resolution 10 ns
  Suffix code NS, US, MS, S
  S is used when the suffix code is omitted.

Details
This command is not available for MS269x Series.
This setting is shared by the trigger signal and gate signal. The same value is also used when frame trigger is selected as the gate signal source for gate sweep.

Example of Use
To query the frame trigger occurrence offset time.
TRIG:FRAM:OFFS?
> 0.02000000
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[:SENSe]:SWEep:EGATe[:STATe] ON|OFF|1|0
Gate Sweep

Function
This command sets the gate sweep to On/Off.

Command
[:SENSe]:SWEep:EGATe[:STATe] <switch>

Parameter
<switch>  Gate sweep On/Off
ON|1  Uses the gate sweep.
OFF|0  Does not use the gate sweep.

Details
This command is not available when Internal Signal Generator Control On/Off is On.

Example of Use
To set the gate sweep to On/Off.
SWE:EGAT ON

[:SENSe]:SWEep:EGATe[:STATe]?
Gate Sweep Query

Function
This command queries the On/Off state of the gate sweep.

Query
[:SENSe]:SWEep:EGATe[:STATe]?

Response
<switch>

Parameter
<switch>  Gate sweep On/Off
1  Uses the gate sweep.
0  Does not use the gate sweep.

Example of Use
To query the On/Off state of the gate sweep.
SWE:EGAT?
> 1
[:SENSe]:SWEep:EGATe:SOURce
EXTernal[1|2]|EXT2|IMMediate|WIF|RF Burst|SG|BBIF|FRAMe

**Gate Source**

**Function**

This command selects the gate signal source.

**Command**

[:SENSe]:SWEep:EGATe:SOURce <source>

**Parameter**

<table>
<thead>
<tr>
<th>&lt;source&gt;</th>
<th>Trigger signal source</th>
</tr>
</thead>
<tbody>
<tr>
<td>[MS269xA]</td>
<td></td>
</tr>
<tr>
<td>EXTernal[1]</td>
<td>External input (External)</td>
</tr>
<tr>
<td>IMMEDIATE</td>
<td>Free run</td>
</tr>
<tr>
<td>WIF</td>
<td>RF Burst</td>
</tr>
<tr>
<td>SG</td>
<td>SG marker</td>
</tr>
<tr>
<td>BBIF</td>
<td>Baseband Interface (BBIF)</td>
</tr>
<tr>
<td>[MS2830A], [MS2840A]</td>
<td></td>
</tr>
<tr>
<td>EXTernal[1]</td>
<td>External input (External)</td>
</tr>
<tr>
<td>IMMEDIATE</td>
<td>Free run</td>
</tr>
<tr>
<td>WIF</td>
<td>RF Burst</td>
</tr>
<tr>
<td>SG</td>
<td>SG marker</td>
</tr>
<tr>
<td>FRAME</td>
<td>Frame period trigger</td>
</tr>
<tr>
<td>[MS2850A]</td>
<td></td>
</tr>
<tr>
<td>EXTernal[1]</td>
<td>External input 1 (External 1)</td>
</tr>
<tr>
<td>EXTernal2</td>
<td>EXT2</td>
</tr>
<tr>
<td>IMMEDIATE</td>
<td>Free run</td>
</tr>
<tr>
<td>WIF</td>
<td>RF Burst</td>
</tr>
<tr>
<td>FRAME</td>
<td>Frame period trigger</td>
</tr>
</tbody>
</table>

**Details**

**[MS269xA]**
SG marker trigger can be selected only when the Option 020/120 Vector Signal Generator is installed.

BBIF trigger cannot be selected only when the Option 040/140 Baseband Interface Unit is not installed or the software package is Ver.6.00.00 or later.

**[MS2830A], [MS2840A]**
SG marker trigger can be selected only when the Option 020/120/021/121 Vector Signal Generator is installed.

**[MS2850A]**
External input 2 (External 2) can be selected only for MS2850A.

**Example of Use**

To set the gate signal source to wide bandwidth IF detection.

SWE:EGAT:SOUR WIF
[:SENSe]:SWEep:EGATe:SOURce?
Gate Source Query

Function
This command queries the gate signal source.

Command
[:SENSe]:SWEep:EGATe:SOURce?

Response
<source>

Parameter
<source>    Trigger signal source
[MS269xA]
    EXT        External input (External)
    IMM        Free run
    WIF        Wideband IF detection (Wide IF Video)
    SG         SG marker
    BBIF       Baseband Interface (BBIF)
[MS2830A], [MS2840A]
    EXT        External input (External)
    IMM        Free run
    WIF        Wideband IF detection (Wide IF Video)
    SG         SG marker
    FRAM       Frame period trigger
[MS2850A]
    EXT        External input 1 (External 1)
    EX2        External input 2 (External 2)
    IMM        Free run
    WIF        Wideband IF detection (Wide IF Video)
    FRAM       Frame period trigger

Example of Use
To query the gate signal source.
SWE:EGAT:SOUR?
> WIF
[:SENSe]:SWEep:EGATe:WIF|:RFBurst:LEVEL:ABSolute <ampl>

Gate Level

Function

This command sets the threshold of the level to start the gate sweep.

Command

[:SENSe]:SWEep:EGATe:WIF|:RFBurst:LEVEL:ABSolute <ampl>

Parameter

<ampl> Threshold of level to start gate sweep
  Range –60 to 50 dBm
  Resolution 1 dB
  Suffix code DBM, DM
dBm is used even when omitted.

Details

This setting is enabled when the gate signal source is wideband IF detection (Wide IF Video).

Example of Use

To set the start level of the gate sweep to –10 dBm.
SWE:EGAT:WIF:LEV:ABS -10

[:SENSe]:SWEep:EGAtE:WIF|:RFBurst:LEVEL:ABSolute?

Gate Level Query

Function

This command queries the threshold of the level to start the gate sweep.

Query

[:SENSe]:SWEep:EGATe:WIF|:RFBurst:LEVEL:ABSolute?

Response

<ampl>

Parameter

<ampl> Threshold of level to start gate sweep
  Range –60 to 50 dBm
  Resolution 1 dB
  Suffix code None. Value is returned in dBm units.
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Details

This setting is enabled when the gate signal source is wideband IF detection (Wide IF Video).

Example of Use

To query the start level of the gate sweep.
SWE:EGAT:WIF:LEV:ABS?
> -10

[:SENSe]:SWEep:EGATe:SLOPe POSitive|NEGative

Gate Slope

Function

This command sets the detection mode for the gate signal.

Command

[:SENSe]:SWEep:EGATe:SLOPe <mode>

Parameter

<table>
<thead>
<tr>
<th>&lt;mode&gt;</th>
<th>Detection mode for gate signal</th>
</tr>
</thead>
<tbody>
<tr>
<td>POSitive</td>
<td>Detects at the rising edge.</td>
</tr>
<tr>
<td>NEGative</td>
<td>Detects at the falling edge.</td>
</tr>
</tbody>
</table>

Details

This setting can be applied when the gate signal source is wideband IF detection (Wide IF Video), external input (External), SG marker, or Baseband Interface (BBIF).

Example of Use

To detect at the rising edge.
SWE:EGAT:SLOP POS
[:SENSe]:SWEep:EGATe:SLOPe?
Gate Slope Query

Function

This command queries the detection mode for the gate signal.

Query

[:SENSe]:SWEep:EGATe:SLOPe?

Response

<mode>

Parameter

<mode>  Detection mode for gate signal
POS     Detects at the rising edge.
NEG     Detects at the falling edge.

Details

This setting is enabled when the gate signal source is wideband IF detection (Wide IF Video), external input (External), SG marker, or Baseband Interface (BBIF).

Example of Use

To query the detection mode for the gate signal.
SWE:GATE:SLOP?
> POS
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[:SENSe]:SWEep:EGATe:DELay <time>
Gate Delay

Function
This command sets the delay time to start the gate sweep.

Command
[:SENSe]:SWEep:EGATe:DELay <time>

Parameter
<time>  Delay time to start the gate.
  Range  0 to 1 s
  Resolution  20 ns
  Suffix code  NS, US, MS, S
  S is used when omitted.

Example of Use
To set the gate delay time to 20 ms.
SWE:EGAT:DEL 20MS

[:SENSe]:SWEep:EGATe:DELay?
Gate Delay Query

Function
This command queries the delay time to start the gate sweep.

Query
[:SENSe]:SWEep:EGATe:DELay?

Response
<time>

Parameter
<time>  Delay time to start the gate.
  Range  0 to 1 s
  Resolution  20 ns
  Suffix code  None. Value is returned in s units.

Example of Use
To query the gate delay time.
SWE:EGAT:DEL?
> 0.02000000
[SENSe]:SWEep:EGATe:LENGth <time>

Gate Length

Function

This command sets the time length of the gate.

Command

[SENSe]:SWEep:EGATe:LENGth <time>

Parameter

<time> Time length of the gate
Range 10 µs to 1 s
Resolution 20 ns
Suffix code NS, US, MS, S
S is used when omitted.

Example of Use

To set the gate time length to 20 ms.
SWE:EGAT:LENG 20MS

[SENSe]:SWEep:EGATe:LENGth?

Gate Length Query

Function

This command queries the time length of the gate.

Query

[SENSe]:SWEep:EGATe:LENGth?

Response

<time>

Parameter

<time> Time length of the gate
Range 10 µs to 1 s
Resolution 20 ns
Suffix code None. Value is returned in s units.

Example of Use

To query the gate time length.
SWE:EGAT:LENG?
> 0.02000000
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[:SENSe]:SWEep:EGATe:VIEW[:STATe] ON|OFF|1|0

Gate View

Function
This command sets whether to display the gate view.

Command
[:SENSe]:SWEep:EGATe:VIEW[:STATe] <switch>

Parameter

<table>
<thead>
<tr>
<th>&lt;switch&gt;</th>
<th>Displays or hides Gate View.</th>
</tr>
</thead>
<tbody>
<tr>
<td>OFF</td>
<td>0</td>
</tr>
<tr>
<td>ON</td>
<td>1</td>
</tr>
</tbody>
</table>

Details
This command is not available during time domain measurement. 
This command is not available when Gate Sweep is set to Off. 
This command is not available when the N dB Bandwidth measurement function is On. 
This command is not available when the Math function is other than Off.

Example of Use
To display Gate View.
SWE:EGAT:VIEW ON

[:SENSe]:SWEep:EGATe:VIEW[:STATe]?

Gate View Query

Function
This command queries whether to display the gate view.

Query
[:SENSe]:SWEep:EGATe:VIEW[:STATe]?

Response

<table>
<thead>
<tr>
<th>&lt;switch&gt;</th>
<th>Display/hide gate view</th>
</tr>
</thead>
<tbody>
<tr>
<td>0</td>
<td>Gate View is hidden.</td>
</tr>
<tr>
<td>1</td>
<td>Gate View is displayed.</td>
</tr>
</tbody>
</table>

Example of Use
To query whether Gate View is displayed.
SWE:EGAT:VIEW?
> 0
[:SENSe]:SWEep:EGATe[:VIEW]:TIME <time>
Gate View Sweep Time

Function
This command sets the sweep time for Gate View. This parameter and the one for setting the sweep time for time axis measurement reference the same value.

Command
[:SENSe]:SWEep:EGATe[:VIEW]:TIME <time>

Parameter
<time> Sweep time
Range 1 µs to 1000 s
Suffix code NS, US, MS, S
S is used when omitted.
Default 100 ms

Details
This command is not available when Gate View is set to Off.

Example of Use
To set the sweep time to 100 ms.
SWE:EGAT:TIME 0.1

[:SENSe]:SWEep:EGATe[:VIEW]:TIME?
Gate View Sweep Time Query

Function
This command queries the sweep time for Gate View. This parameter and the one for setting the sweep time for time axis measurement reference the same value.

Query
[:SENSe]:SWEep:EGATe[:VIEW]:TIME?

Response
<time>

Parameter
<time> Sweep time
Range 1 µs to 1000 s
Suffix code None. Value is returned in s units.
Example of Use

To query the sweep time.
SWE:EGAT:TIME?
> 0.100000

[:SENSe]:SWEep:EGATe:VIEW:BANDwidth[:RESolution]:AUTO ON|OFF|1|0
Gate View Resolution Bandwidth Auto/Manual

Function

This command automatically sets the resolution bandwidth (RBW) for Gate View.
This parameter and the one for automatically setting the RBW for time axis measurement reference the same value.

Command

[:SENSe]:SWEep:EGATe:VIEW:BANDwidth[:RESolution]:AUTO
<switch>

Parameter

<switch> Automatic setting
0|OFF Disables the automatic setting.
1|ON Enables the automatic setting (Default).

Details

This command is not available when Gate View is set to Off.

Example of Use

To enable the automatic setting of the RBW for Gate View.
SWE:EGAT:VIEW:BAND:AUTO ON
[:SENSe]:SWEep:EGATe:VIEW:BANDwidth[:RESolution]:AUTO?
Gate View Resolution Bandwidth Auto/Manual Query

Function
This command queries the automatic resolution bandwidth (RBW) setting for Gate View.
This parameter and the one for automatically setting the RBW for time axis measurement reference the same value.

Query
[:SENSe]:SWEep:EGATe:VIEW:BANDwidth[:RESolution]:AUTO?

Response
<switch>

Parameter
<switch> Automatic setting
0 Disables the automatic setting.
1 Enables the automatic setting.

Example of Use
To query the automatic resolution bandwidth setting for Gate View.
SWE:EGAT:VIEW:BAND:AUTO?
> 1
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[:SENSe]:SWEep:EGATe:VIEW:BANDwidth[:RESolution] <freq>
Gate View Resolution Bandwidth

Function

This command sets the resolution bandwidth (RBW) for Gate View. This parameter and the one for setting the RBW for time axis measurement reference the same value.

Command

[:SENSe]:SWEep:EGATe:VIEW:BANDwidth[:RESolution] <freq>

Parameter

<freq>  Resolution bandwidth (RBW)

[MS269xA]
Range/Resolution  30 Hz to 31.25 MHz
However, the settable value is 30 Hz to 3 MHz (for 1 to 3 sequences), 50 kHz, 5 MHz, 10 MHz, or 20 MHz, or 31.25 MHz.

[MS2830A], [MS2840A]
Range/Resolution  30 Hz to 31.25 MHz
However, the settable value is 30 Hz to 3 MHz (for 1 to 3 sequences), 500 Hz, 50 kHz, 2 MHz, 5 MHz, 10 MHz, 20 MHz, or 31.25 MHz.

[MS2850A]
Range/Resolution  30 Hz to 10 MHz
However, the settable value is 30 Hz to 3 MHz (for 1 to 3 sequences), 500 Hz, 50 kHz, 2 MHz, 5 MHz, or 10 MHz.

[Common]
Suffix code  HZ, KHZ, MHZ, MZ, GHZ, GZ
Hz is used when omitted.
Default  Value that is set when RBW is set to Auto

Details

The automatic resolution bandwidth setting function is disabled when the resolution bandwidth (RBW) is changed. This command is not available when Gate View is set to Off.

Example of Use

To set the RBW for Gate View to 3 kHz.
SWE:EGAT:VIEW:BAND 3 KHZ
[:SENSe]:SWEep:EGATe:VIEW:BANDwidth[:RESolution]?
Gate View Resolution Bandwidth Query

Function
This command selects the resolution bandwidth (RBW) for Gate View. This parameter and the one for setting the RBW for time axis measurement reference the same value.

Query
[:SENSe]:SWEep:EGATe:VIEW:BANDwidth[:RESolution]?

Response
"<freq>

Parameter
"<freq> Resolution bandwidth (RBW)

[MS269xA]
Range/Resolution 30 Hz to 31.25 MHz
However, the settable value is 30 Hz to 3 MHz (for 1 to 3 sequences), 50 kHz, 5 MHz, 10 MHz, or 20 MHz, or 31.25 MHz.

[MS2830A], [MS2840A]
Range/Resolution 30 Hz to 31.25 MHz
However, the settable value is 30 Hz to 3 MHz (for 1 to 3 sequences), 500 Hz, 50 kHz, 2 MHz, 5 MHz, 10 MHz, 20 MHz, or 31.25 MHz.

[MS2850A]
Range/Resolution 30 Hz to 10 MHz
However, the settable value is 30 Hz to 3 MHz (for 1 to 3 sequences), 500 Hz, 50 kHz, 2 MHz, 5 MHz, or 10 MHz.

[Common]
Suffix code None. Value is returned in Hz units.

Example of Use
To query the RBW,
SWE:EGAT:VIEW:BAND?
> 3000

[:SENSe]:SWEep:EGATe:VIEW:BANDwidth:VIDeo:AUTO ON|OFF|1|0
Gate View Video Bandwidth Auto/Manual

Function
This command automatically sets the video bandwidth (VBW) for Gate View. This parameter and the one for setting the VBW for time axis measurement reference the same value.
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Command

[:SENSe]:SWEep:EGATe:VIEW:BANDwidth:VIDeo:AUTO <switch>

Parameter

<switch>  Automatic setting
0|OFF  Disables the automatic setting.
1|ON  Enables the automatic setting (Default).

Details

This command is not available when Gate View is set to Off.

Example of Use

To enable the automatic setting for VBW.
SWE:EGAT:VIEW:BAND:VID:AUTO ON

[:SENSe]:SWEep:EGATe:VIEW:BANDwidth:VIDeo:AUTO?
Gate View Video Bandwidth Auto/Manual Query

Function

This command queries the automatic video bandwidth (VBW) setting for Gate View.
This parameter and the one for automatically setting the VBW for time axis measurement reference the same value.

Query

[:SENSe]:SWEep:EGATe:VIEW:BANDwidth:VIDeo:AUTO?

Response

<switch>

Parameter

<switch>  Automatic setting
0  Disables the automatic setting.
1  Enables the automatic setting.

Example of Use

To query the automatic video bandwidth setting for Gate View.
SWE:EGAT:VIEW:BAND:VID:AUTO?
> 1
[:SENSe]:SWEep:EGATe:VIEW:BANDwidth:VIDeo <freq>
Gate View Video Bandwidth

Function

This command sets the video bandwidth (VBW) for Gate View. This parameter and the one for setting the VBW for time axis measurement reference the same value.

Command

[:SENSe]:SWEep:EGATe:VIEW:BANDwidth:VIDeo <freq>

Parameter

<table>
<thead>
<tr>
<th>&lt;freq&gt;</th>
<th>Video bandwidth (VBW)</th>
</tr>
</thead>
<tbody>
<tr>
<td>Range/Resolution</td>
<td>1 Hz to 10 MHz (1 to 3 sequences), 5 kHz, OFF</td>
</tr>
<tr>
<td>Suffix code</td>
<td>HZ, KHZ, KZ, MHZ, MZ, GHZ, GZ</td>
</tr>
<tr>
<td>Hz is used when omitted.</td>
<td></td>
</tr>
<tr>
<td>Default</td>
<td>Value that is set when VBW is set to Auto.</td>
</tr>
</tbody>
</table>

Details

The automatic video bandwidth setting function is disabled when the video bandwidth (VBW) is changed. This command is not available when Gate View is set to Off. This command is not available when Gate View Detection is set to RMS.

Example of Use

To set the VBW to 3 kHz.
SWE:EGAT:VIEW:BAND:VID 3KHZ

[:SENSe]:SWEep:EGATe:VIEW:BANDwidth:VIDeo?
Gate View Video Bandwidth Query

Function

This command queries the video bandwidth (VBW) for Gate View. This parameter and the one for setting the VBW for time axis measurement reference the same value.

Query

[:SENSe]:SWEep:EGATe:VIEW:BANDwidth:VIDeo?

Response

<freq>
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Parameter

<table>
<thead>
<tr>
<th>Parameter</th>
<th>Description</th>
</tr>
</thead>
<tbody>
<tr>
<td>&lt;freq&gt;</td>
<td>Video bandwidth (VBW)</td>
</tr>
<tr>
<td>Range/Resolution</td>
<td>1 Hz to 10 MHz (1 to 3 sequences), 5 kHz, OFF</td>
</tr>
<tr>
<td>Suffix code</td>
<td>None. Value is returned in Hz units.</td>
</tr>
</tbody>
</table>

Example of Use

To query the VBW.
SWE:EGAT:VIEW:BAND:VID?
> 3000

[:SENSe]:SWEep:EGATe:VIEW:DETector[:FUNCtion] NORMal|POSitive|SAMPlE|NEGative|RMS

Gate View Detection Mode

Function

This command selects the waveform pattern detection mode for Gate View.
This parameter and the one for setting the waveform pattern detection mode for time axis measurement reference the same value.

Command

[:SENSe]:SWEep:EGATe:VIEW:DETector[:FUNCtion] <det>

Parameter

<table>
<thead>
<tr>
<th>Parameter</th>
<th>Description</th>
</tr>
</thead>
<tbody>
<tr>
<td>&lt;det&gt;</td>
<td>Detection mode</td>
</tr>
<tr>
<td>NORMal</td>
<td>Simultaneous detection of positive and negative peaks (Default)</td>
</tr>
<tr>
<td>POSitive</td>
<td>Positive peak detection</td>
</tr>
<tr>
<td>NEGative</td>
<td>Negative peak detection</td>
</tr>
<tr>
<td>SAMPlE</td>
<td>Sample detection</td>
</tr>
<tr>
<td>RMS</td>
<td>RMS detection</td>
</tr>
</tbody>
</table>

Details

This command is not available when Gate View is set to Off.

Example of Use

To set the detection mode to positive peak detection.
SWE:EGAT:VIEW:DET POS
[SENSe]:SWEep:EGATe:VIEW:DETector[:FUNCtion]?

Gate View Detection Mode Query

Function

This command queries the waveform pattern detection mode for Gate View. This parameter and the one for setting the waveform pattern detection mode for time axis measurement reference the same value.

Query

[:SENSe]:SWEep:EGATe:VIEW:DETector[:FUNCtion]?

Response

<det>

Parameter

<det> Detection mode
NORM Simultaneous detection of positive and negative peaks
POS Positive peak detection
NEG Negative peak detection
SAMP Sample detection
RMS RMS detection

Example of Use

To query the detection mode.
SWE:EGAT:VIEW:DET?
> POS
[:SENSe]:SWEep:EGAtE:VIEW:POINts <integer>

Gate View Trace Point

Function

This command sets the number of trace display points for Gate View. This parameter and the one for setting the number of trace display points for time axis measurement reference the same value.

Command

[:SENSe]:SWEep:EGAtE:VIEW:POINts <integer>

Parameter

<table>
<thead>
<tr>
<th>&lt;integer&gt;</th>
<th>Number of trace display points</th>
</tr>
</thead>
<tbody>
<tr>
<td>11</td>
<td>11 points</td>
</tr>
<tr>
<td>21</td>
<td>21 points</td>
</tr>
<tr>
<td>41</td>
<td>41 points</td>
</tr>
<tr>
<td>51</td>
<td>51 points</td>
</tr>
<tr>
<td>101</td>
<td>101 points</td>
</tr>
<tr>
<td>201</td>
<td>201 points</td>
</tr>
<tr>
<td>251</td>
<td>251 points</td>
</tr>
<tr>
<td>401</td>
<td>401 points</td>
</tr>
<tr>
<td>501</td>
<td>501 points</td>
</tr>
<tr>
<td>1001</td>
<td>1001 points</td>
</tr>
<tr>
<td>2001</td>
<td>2001 points</td>
</tr>
<tr>
<td>5001</td>
<td>5001 points</td>
</tr>
<tr>
<td>10001</td>
<td>10001 points (Default)</td>
</tr>
<tr>
<td>30001</td>
<td>30001 points (MS269xA, MS2830A, MS2840A Only)</td>
</tr>
</tbody>
</table>

Details

This command is not available when Gate View is set to Off.

Example of Use

To set the number of trace display points to 2001.

SWE:EGAT:VIEW:POIN 2001
[:SENSe]:SWEep:EGATe:VIEW:POINts?
Gate View Trace Point Query

Function
This command queries the number of trace display points for Gate View. This parameter and the one for setting the number of trace display points for time axis measurement reference the same value.

Query
[:SENSe]:SWEep:EGATe:VIEW:POINts?

Response
<integer>

Parameter
<integer> Number of trace display points
11 11 points
21 21 points
41 41 points
51 51 points
101 101 points
201 201 points
251 251 points
401 401 points
501 501 points
1001 1001 points
2001 2001 points
5001 5001 points
10001 10001 points
30001 30001 points
(MS269xA, MS2830A, MS2840A Only)

Example of Use
To query the number of trace display points.
SWE:EGAT:VIEW:POIN?
> 2001
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[:SENSe]:SWEep:EGATe:VIEW:FREQuency:AUTO ON|OFF|1|0
Gate View Frequency Mode

Function
This command selects the center frequency setting mode for Gate View.

Command
[:SENSe]:SWEep:EGATe:VIEW:FREQuency:AUTO <switch>

Parameter
<switch> Center frequency setting mode
  0|OFF Sets the center frequency manually.
  1|ON Automatically sets the center frequency to that for the frequency domain. (Default)

Details
This command is not available when Gate View is set to Off.

Example of Use
To manually set the center frequency for Gate View.
SWE:EGAT:VIEW:FREQ:AUTO OFF

[:SENSe]:SWEep:EGATe:VIEW:FREQuency:AUTO?
Gate View Frequency Mode Query

Function
To query the center frequency setting mode for Gate View.

Query
[:SENSe]:SWEep:EGATe:VIEW:FREQuency:AUTO?

Response
<switch>

Parameter
<switch> Center frequency setting mode
  0 The center frequency is set manually.
  1 The center frequency for the frequency domain is set automatically.

Example of Use
To query the center frequency setting mode for Gate View.
SWE:EGAT:VIEW:FREQ:AUTO?
> 0
[:SENSe]:SWEep:EGATe:VIEW:FREQuency <freq>

Gate View Frequency

Function

This command sets the center frequency for Gate View.

Command

[:SENSe]:SWEep:EGATe:VIEW:FREQuency <freq>

Parameter

<table>
<thead>
<tr>
<th>&lt;freq&gt;</th>
<th>Center Frequency</th>
</tr>
</thead>
<tbody>
<tr>
<td>Range</td>
<td></td>
</tr>
<tr>
<td>[MS269xA]</td>
<td>–100 MHz to 6.05 GHz (MS2690A)</td>
</tr>
<tr>
<td></td>
<td>–100 MHz to 13.6 GHz (MS2691A)</td>
</tr>
<tr>
<td></td>
<td>–100 MHz to 26.6 GHz (MS2692A)</td>
</tr>
<tr>
<td>[MS2830A]</td>
<td>–100 MHz to 3.7 GHz (Option 040)</td>
</tr>
<tr>
<td></td>
<td>–100 MHz to 6.1 GHz (Option 041)</td>
</tr>
<tr>
<td></td>
<td>–100 MHz to 13.6 GHz (Option 043)</td>
</tr>
<tr>
<td></td>
<td>–100 MHz to 26.6 GHz (Option 044)</td>
</tr>
<tr>
<td></td>
<td>–100 MHz to 43.1 GHz (Option 045)</td>
</tr>
<tr>
<td>[MS2840A]</td>
<td>–100 MHz to 3.7 GHz (Option 040)</td>
</tr>
<tr>
<td></td>
<td>–100 MHz to 6.1 GHz (Option 041)</td>
</tr>
<tr>
<td></td>
<td>–100 MHz to 26.6 GHz (Option 044)</td>
</tr>
<tr>
<td></td>
<td>–100 MHz to 44.6 GHz (Option 046)</td>
</tr>
<tr>
<td>[MS2850A]</td>
<td>–100 MHz to 32.1 GHz (Option 047)</td>
</tr>
<tr>
<td></td>
<td>–100 MHz to 44.6 GHz (Option 046)</td>
</tr>
<tr>
<td>Resolution</td>
<td>1 Hz</td>
</tr>
<tr>
<td>Suffix code</td>
<td>HZ, KHZ, KZ, MHZ, MZ, GHZ, GZ</td>
</tr>
<tr>
<td></td>
<td>Hz is used when omitted.</td>
</tr>
<tr>
<td>Default</td>
<td></td>
</tr>
<tr>
<td>[MS269xA]</td>
<td>3.00 GHz (MS2690A)</td>
</tr>
<tr>
<td></td>
<td>6.75 GHz (MS2691A)</td>
</tr>
<tr>
<td></td>
<td>13.25 GHz (MS2692A)</td>
</tr>
<tr>
<td>[MS2830A]</td>
<td>1.8 GHz (Option 040)</td>
</tr>
<tr>
<td></td>
<td>3.0 GHz (Option 041)</td>
</tr>
<tr>
<td></td>
<td>6.75 GHz (Option 043)</td>
</tr>
<tr>
<td></td>
<td>13.25 GHz (Option 044)</td>
</tr>
<tr>
<td></td>
<td>21.5 GHz (Option 045)</td>
</tr>
<tr>
<td>[MS2840A]</td>
<td>1.8 GHz (Option 040)</td>
</tr>
<tr>
<td></td>
<td>3.0 GHz (Option 041)</td>
</tr>
<tr>
<td></td>
<td>13.25 GHz (Option 044)</td>
</tr>
<tr>
<td></td>
<td>22.25 GHz (Option 046)</td>
</tr>
<tr>
<td>[MS2850A]</td>
<td>16 GHz (Option 047)</td>
</tr>
<tr>
<td></td>
<td>22.25 GHz (Option 046)</td>
</tr>
</tbody>
</table>
Chapter 2  SCPI Device Message Details

Example of Use

This command is not available when Gate View is set to Off.

To set the center frequency to 123.456 kHz.

SWE:EGAT:VIEW:FREQ 123456

[:SENSe]:SWEep:EGATe:VIEW:FREQuency?

Gate View Frequency Query

Function

This commands queries the center frequency of the gate view.

Command

[:SENSe]:SWEep:EGATe:VIEW:FREQuency?

Response

<freq>

Parameter

<freq>  Center Frequency

<table>
<thead>
<tr>
<th>Range</th>
<th>Center Frequency</th>
</tr>
</thead>
<tbody>
<tr>
<td>[MS269xA]</td>
<td>-100 MHz to 6.05 GHz (MS2690A)</td>
</tr>
<tr>
<td></td>
<td>-100 MHz to 13.6 GHz (MS2691A)</td>
</tr>
<tr>
<td></td>
<td>-100 MHz to 26.6 GHz (MS2692A)</td>
</tr>
<tr>
<td>[MS2830A]</td>
<td>-100 MHz to 3.7 GHz (Option 040)</td>
</tr>
<tr>
<td></td>
<td>-100 MHz to 6.1 GHz (Option 041)</td>
</tr>
<tr>
<td></td>
<td>-100 MHz to 13.6 GHz (Option 043)</td>
</tr>
<tr>
<td></td>
<td>-100 MHz to 26.6 GHz (Option 044)</td>
</tr>
<tr>
<td></td>
<td>-100 MHz to 43.1 GHz (Option 045)</td>
</tr>
<tr>
<td>[MS2840A]</td>
<td>-100 MHz to 3.7 GHz (Option 040)</td>
</tr>
<tr>
<td></td>
<td>-100 MHz to 6.1 GHz (Option 041)</td>
</tr>
<tr>
<td></td>
<td>-100 MHz to 26.6 GHz (Option 044)</td>
</tr>
<tr>
<td></td>
<td>-100 MHz to 44.6 GHz (Option 046)</td>
</tr>
<tr>
<td>[MS2850A]</td>
<td>-100 MHz to 32.1 GHz (Option 047)</td>
</tr>
<tr>
<td></td>
<td>-100 MHz to 44.6 GHz (Option 046)</td>
</tr>
</tbody>
</table>

Resolution 1 Hz

Suffix code None. Value is returned in Hz units.

Default

| [MS269xA] | 3.00 GHz (MS2690A) |
|           | 6.75 GHz (MS2691A) |
|           | 13.25 GHz (MS2692A) |
| [MS2830A] | 1.8 GHz (Option 040) |
|           | 3.0 GHz (Option 041) |
|           | 6.75 GHz (Option 043) |
|           | 13.25 GHz (Option 044) |
|           | 21.5 GHz (Option 045) |
| [MS2840A] | 1.8 GHz (Option 040) |
2.7 Sweep/Trigger/Gate

Example of Use

To query the center frequency.
SWE:EGAT:VIEW:FREQ?
> 123456

[:SENSe]:SWEep:EGATe:HOLDoff <time>

Gate Hold Function

This command sets the time during which gate input is disabled for a set time, from the first gate signal input until the next gate signal input, during gate sweep.

Command

[:SENSe]:SWEep:EGATe:HOLDoff <time>

Parameter

<time> Set time
Range 0 to 1 s
Resolution 10 ns
Suffix code NS, US, MS, S
S is used when the suffix code is omitted.
Default 100 µs

Details

This command is not available for MS269x Series.
The Gate Hold (ON/OFF) function is set to ON when the value is changed with this function.

Example of Use

To set the gate input disable time to 100 ms.
SWE:EGAT:HOLD 100MS
[:SENSe]:SWEep:EGAtE:HOLDoff?
Gate Hold Query

Function

This command queries the time during which gate input is disabled for a set time, from the first gate signal input until the next gate signal input, during gate sweep.

Query

[:SENSe]:SWEep:EGAtE:HOLDoff?

Response

<time>

Parameter

<time>  Set time
  Range     0 to 1 s
  Resolution 10 ns
  Suffix code None. Value is returned in s units.
  Default  100 µs

Details

This command is not available for MS269x Series.

Example of Use

To query the gate input disable time.
SWE:EGAT:HOLD?
> 0.02000000

[:SENSe]:SWEep:EGAtE:HOLDoff:STATe OFF|ON|0|1
Gate Hold On/Off

Function

This command switches On/Off the function to disable gate input for a set time, from the first gate input signal until the next gate signal input, during gate sweep.

Command

[:SENSe]:SWEep:EGAtE:HOLDoff:STATe <switch>
Parameter

<table>
<thead>
<tr>
<th>switch</th>
<th>Gate Hold On/Off</th>
</tr>
</thead>
<tbody>
<tr>
<td>ON 1</td>
<td>Gate Hold is On</td>
</tr>
<tr>
<td>OFF 0</td>
<td>Gate Hold is Off</td>
</tr>
</tbody>
</table>

Details

This command is not available for MS269x Series.
The Gate Sweep (On/Off) function is automatically set to On when this function is set to On.

Example of Use

To set the gate input disable time setting to On.
```
SWE:EGAT:HOLD:STAT ON
```
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:INITiate:RESTart
Restart Sweep

Function
This command restarts the sweep.

Command
:INITiate:RESTart

Example of Use
To restart the sweep.
INIT:REST

:ABORt
Stop Sweep

Function
This command stops the sweep.

Command
:ABORt

Example of Use
To stop the sweep.
ABOR
## 2.8 Measure Function

Table 2.8-1 lists device messages for measure.

### Table 2.8-1  Device messages for measure

<table>
<thead>
<tr>
<th>Function</th>
<th>Device Messages</th>
</tr>
</thead>
<tbody>
<tr>
<td>Select Standard</td>
<td>[:SENSe]:RADio:STAnArd[:SELect] OFF</td>
</tr>
<tr>
<td>Measurement Off</td>
<td>:CONFirme:SAAnalyzer</td>
</tr>
<tr>
<td>Current Measurement Query</td>
<td>:CONFirme?</td>
</tr>
<tr>
<td>Load Standard Parameter</td>
<td>[:SENSe]:RADio:STAnArd:LOAD &lt;function&gt;,&lt;pattern&gt;</td>
</tr>
<tr>
<td></td>
<td>[:SENSe]:RADio:STAnArd:LOAD? &lt;function&gt;</td>
</tr>
</tbody>
</table>
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[:SENSe]:RADio:STANdard[:SELect]
OFF|5GPRE|WCDMADN|WCDMAUP|MWIMAXDL|MWIMAXUL|3GLTE_DL|3GLTE_UL|ETC_DSRC|TDSCDMA|XGPHS|CDMA2KFWD|EVDOFWD|3GLTE_TDD_DL|3GLTE_TDD_UL|ISDBTMM|WLAN|ISDBT|LRWPANS|APCO_P25|MICROLINKETSI|NXDN|ISDBTSB

Select Standard

Function

This command selects parameter setting type for the Measure function, using a communication standard.

Command

[:SENSe]:RADio:STANdard[:SELect] <standard>

Parameter

<standard>  Communication standard

OFF       Off
5GPRE     5G Pre-Standard
WCDMADN   3GPP W-CDMA Downlink
WCDMAUP   3GPP W-CDMA Uplink
MWIMAXDL  Mobile WiMAX (IEEE802.16e) Downlink
MWIMAXUL  Mobile WiMAX (IEEE802.16e) Uplink
3GLTE_DL  3GPP LTE Downlink
3GLTE_UL  3GPP LTE Uplink
ETC_DSRC  ARIB STD-T75
TDSCDMA   3GPP TDD 1.28Mcps Option
XGPHS     XG-PHS
CDMA2KFWD 3GPP2 CDMA2000 Forward Link
EVDOFWD   3GPP2 EV-DO Forward Link
3GLTE_TDD_DL 3GPP LTE TDD Downlink
3GLTE_TDD_UL 3GPP LTE TDD Uplink
ISDBTMM   ISDB-Tmm
WLAN      WLAN (IEEE802.11)
ISDBT     ISDB-T
LRWPANS   LR-WPANs (IEEE802.15.4)
APCO_P25  APCO P25
MICROLINKETSI Microlink ETSI
NXDN      NXDN
ISDBTSB   ISDB-Tsb

Example of Use

To select parameters conforming to the 3GPP W-CDMA Uplink.
RAD:STAN  WCDMAUP
[:SENSe]:RADio:STANdard[:SELect]?
Select Standard Query

Function
This command queries the setting of the communication standard.

Query
[:SENSe]:RADio:STANdard[:SELect]?

Response
<standard>

Parameter
<standard>  Communication standard
OFF          Off
5GPRE        5G Pre-Standard
WCDMA2FWD    3GPP2 CDMA2000 Forward Link
EVDOFWD      3GPP2 EV-DO Forward Link
3GLTE_TDD_DL 3GPP LTE TDD Downlink
3GLTE_TDD_UL 3GPP LTE TDD Uplink
ISDBTMM      ARIB STD-T75
WLAN         WLAN (IEEE802.11)
ISDBT        ISDB-T
LRWPANS      LR-WPANs (IEEE802.15.4)
APCO_P25     APCO_P25
MICROLINKETSI Microlink ETSI
NXDN          NXDN
ISDBTSB      ISDB-Tsb

Example of Use
To query the setting of the communication standard.
RAD:STAN?
> WCDMAUP
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:CONFigure:SANalyzer
Measurement Off

Function

This command disables currently running measure function. No operation is made if no measure function is running.

Command

:CONFigure:SANalyzer

Example of Use

To disable the currently running measure function.
CONF:SAN

:CONFigure?
Current Measurement Query

Function

This command queries the name of the current measure function.

Query

:CONFigure?

Response

<mode>

Parameter

<mode>  Measure function
ACP    ACP measurement
BPOW   Burst Average Power measurement
OBW    OBW measurement
CHP    Channel Power measurement
SEM    Spectrum Emission Mask measurement
SPUR   Spurious Emission measurement
TOI    TOI (Third Order Intercept) measurement
SAN    OFF

Example of Use

To query the current Measure function.
CONF?
> ACP
[:SENSe]:RADio:STANdard:LOAD <function>[,<pattern>]

Load Standard Parameter

Function

This command selects the Measure function parameter. Selectable parameters vary depending on the setting for Standard.

Command

[:SENSe]:RADio:STANdard:LOAD <function>[,<pattern>]

Parameter

<function>  Measure function
ADJ         ACP measurement
BRSTAVGPWR  Burst Average Power measurement
OBW         OBW measurement
CHPWR       Channel Power measurement
SEM         Spectrum Emission Mask measurement
SPUR        Spurious Emission measurement

When Standard is set to 5G Pre-Standard (ACP measurement)
<pattern>   Parameter to be set
99MHZ_1CARR 1 carrier, Carrier Spacing 99 MHz
100MHZ_1CARR 1 carrier, Carrier Spacing 100 MHz
99MHZ_2CARR  2 carrier, Carrier Spacing 99 MHz
100MHZ_2CARR 2 carrier, Carrier Spacing 100 MHz
99MHZ_4CARR  4 carrier, Carrier Spacing 99 MHz
100MHZ_4CARR 4 carrier, Carrier Spacing 100 MHz
99MHZ_8CARR  8 carrier, Carrier Spacing 99 MHz
100MHZ_8CARR 8 carrier, Carrier Spacing 100 MHz
When omitted: 1 carrier, Carrier Spacing 99 MHz

When Standard is set to W-CDMA Uplink (ACP measurement)
<pattern>   Parameter to be set
UPLINK      3GPP W-CDMA Uplink, ACP measurement
When omitted: 3GPP W-CDMA Uplink, ACP measurement

When Standard is set to W-CDMA Uplink (Burst Average Power measurement)
<pattern>   Parameter to be set
MEAN        3GPP W-CDMA Uplink, Mean Power measurement
When omitted: 3GPP W-CDMA Uplink, Mean Power measurement
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When Standard is set to W-CDMA Uplink (OBW measurement)

<table>
<thead>
<tr>
<th>Parameter to be set</th>
<th>Description</th>
</tr>
</thead>
<tbody>
<tr>
<td>UPLINK</td>
<td>3GPP W-CDMA Uplink</td>
</tr>
</tbody>
</table>

When omitted:

| 3GPP W-CDMA Uplink |

When Standard is set to W-CDMA Uplink (Channel Power measurement)

<table>
<thead>
<tr>
<th>Parameter to be set</th>
<th>Description</th>
</tr>
</thead>
<tbody>
<tr>
<td>UPLINK</td>
<td>3GPP W-CDMA Uplink, Mean Power measurement</td>
</tr>
<tr>
<td>MEAN</td>
<td>3GPP W-CDMA Uplink, Mean Power measurement</td>
</tr>
<tr>
<td>RRCFILTER</td>
<td>3GPP W-CDMA Uplink, RRC Filtered Power measurement</td>
</tr>
</tbody>
</table>

When omitted:

| 3GPP W-CDMA Uplink, Mean Power measurement |

When Standard is set to W-CDMA Uplink (Spectrum Emission Mask measurement)

<table>
<thead>
<tr>
<th>Parameter to be set</th>
<th>Description</th>
</tr>
</thead>
<tbody>
<tr>
<td>UPLINK</td>
<td>3GPP W-CDMA Uplink, Spectrum Emission Mask measurement (Uplink)</td>
</tr>
<tr>
<td>ADD</td>
<td>3GPP W-CDMA Uplink, Spectrum Emission Mask measurement (Uplink (Additional))</td>
</tr>
</tbody>
</table>

When omitted:

| 3GPP W-CDMA Uplink, Spectrum Emission Mask measurement (Uplink) |

When Standard is set to W-CDMA Downlink (ACP measurement)

<table>
<thead>
<tr>
<th>Parameter to be set</th>
<th>Description</th>
</tr>
</thead>
<tbody>
<tr>
<td>DOWNLINK</td>
<td>3GPP W-CDMA Downlink, ACP measurement (Single Carrier)</td>
</tr>
<tr>
<td>SINGLECARR</td>
<td>3GPP W-CDMA Downlink, ACP measurement (Single Carrier)</td>
</tr>
<tr>
<td>2CARR</td>
<td>3GPP W-CDMA Downlink (2 Carriers)</td>
</tr>
<tr>
<td>3CARR</td>
<td>3GPP W-CDMA Downlink (3 Carriers)</td>
</tr>
<tr>
<td>4CARR</td>
<td>3GPP W-CDMA Downlink (4 Carriers)</td>
</tr>
</tbody>
</table>

When omitted:

| 3GPP W-CDMA Downlink, ACP measurement (Single Carrier) |

When Standard is set to W-CDMA Downlink (Burst Average Power measurement)

<table>
<thead>
<tr>
<th>Parameter to be set</th>
<th>Description</th>
</tr>
</thead>
<tbody>
<tr>
<td>MEAN</td>
<td>3GPP W-CDMA Downlink, Mean Power measurement</td>
</tr>
</tbody>
</table>

When omitted:

| 3GPP W-CDMA Downlink, Mean Power measurement |
2.8 Measure Function

measurement

When Standard is set to W-CDMA Downlink (OBW measurement)

\(<\text{pattern}>\) Parameter to be set

\(\text{DOWNLINK}\) 3GPP W-CDMA Downlink

When omitted: 3GPP W-CDMA Downlink

When Standard is set to W-CDMA Downlink (Channel Power measurement)

\(<\text{pattern}>\) Parameter to be set

\(\text{DOWNLINK}\) 3GPP W-CDMA Downlink, Mean Power measurement

\(\text{MEAN}\) 3GPP W-CDMA Downlink, Mean Power measurement

\(\text{RRCFILTER}\) 3GPP W-CDMA Downlink, RRC Filtered Power measurement

When omitted: 3GPP W-CDMA Downlink, Mean Power measurement

When Standard is set to W-CDMA Downlink (Spectrum Emission Mask measurement)

\(<\text{pattern}>\) Parameter to be set

43 3GPP W-CDMA Downlink (P \(\geq\) 43 dBm)

39 3GPP W-CDMA Downlink (39 dBm \(\leq\) P \(<\) 43 dBm)

31 3GPP W-CDMA Downlink (31 dBm \(\leq\) P \(<\) 39 dBm)

31U 3GPP W-CDMA Downlink (P \(<\) 31 dBm)

A43 3GPP W-CDMA Downlink (P \(\geq\) 43 dBm) (Additional)

A39 3GPP W-CDMA Downlink (39 dBm \(\leq\) P \(<\) 43 dBm) (Additional)

A31 3GPP W-CDMA Downlink (31 dBm \(\leq\) P \(<\) 39 dBm) (Additional)

When omitted: 3GPP W-CDMA Downlink (P \(\geq\) 43 dBm)

When Standard is set to Mobile WiMAX (ACP/OBW/Channel Power measurement)

\(<\text{pattern}>\) Parameter to be set

10M 10 MHz BW (Channel Bandwidth 10 MHz)

5M 5 MHz BW (Channel Bandwidth 5 MHz)

When omitted: 10 MHz BW
When Standard is set to Mobile WiMAX (Spectrum Emission Mask measurement)

Parameter to be set

**10M**
10 MHz BW (Channel Bandwidth 10 MHz)

**5M**
5 MHz BW (Channel Bandwidth 5 MHz)

When omitted: 10 MHz BW

When Standard is set to Mobile WiMAX (Burst Average Power measurement)

Parameter to be set

**5MS_FRAME**
5 ms Frame (Power measurement of 1 frame)

When omitted: 5 ms Frame

When Standard is set to LTE Uplink/Downlink (ACP measurement)

Parameter to be set

**1M4BW_UTRA5MHZ**
1.4 MHz BW (UTRA 5 MHz)

**1M4BW_EUTRA1M4HZ**
1.4 MHz BW (E-UTRA 1.4 MHz)

**3MBW_UTRA5MHZ**
3 MHz BW (UTRA 5 MHz)

**3MBW_EUTRA3MHZ**
3 MHz BW (E-UTRA 3 MHz)

**5MBW_UTRA5MHZ**
5 MHz BW (UTRA 5 MHz)

**5MBW_EUTRA5MHZ**
5 MHz BW (E-UTRA 5 MHz)

**10MBW_UTRA5MHZ**
10 MHz BW (UTRA 5 MHz)

**10MBW_EUTRA10MHZ**
10 MHz BW (E-UTRA 10 MHz)

**15MBW_UTRA5MHZ**
15 MHz BW (UTRA 5 MHz)

**15MBW_EUTRA15MHZ**
15 MHz BW (E-UTRA 15 MHz)

**20MBW_UTRA5MHZ**
20 MHz BW (UTRA 5 MHz)

**20MBW_EUTRA20MHZ**
20 MHz BW (E-UTRA 20 MHz)

When omitted: 5 MHz BW (UTRA 5 MHz)

When Standard is set to LTE TDD Downlink (ACP Measurement)

Parameter to be set

**1M4BW_UTRA1M6HZ**
1.4 MHz BW (UTRA 1.6 MHz)

**1M4BW_EUTRA1M4HZ**
1.4 MHz BW (E-UTRA 1.4 MHz)

**1M4BW_ADV**
1.4 MHz BW (Adv Mode)

**3MBW_UTRA1M6HZ**
3 MHz BW (UTRA 1.6 MHz)

**3MBW_EUTRA3MHZ**
3 MHz BW (E-UTRA 3 MHz)

**3MBW_ADV**
3 MHz BW (Adv Mode)

**5MBW_UTRA1M6HZ**
5 MHz BW (UTRA 1.6 MHz)

**5MBW_UTRA5MHZ**
5 MHz BW (UTRA 5 MHz)

**5MBW_UTRA10MHZ**
5 MHz BW (UTRA 10 MHz)

**5MBW_EUTRA5MHZ**
5 MHz BW (E-UTRA 5 MHz)

**5MBW_ADV**
5 MHz BW (Adv Mode)

**10MBW_UTRA1M6HZ**
10 MHz BW (UTRA 1.6 MHz)

**10MBW_UTRA5MHZ**
10 MHz BW (UTRA 5 MHz)
2.8 Measure Function

<table>
<thead>
<tr>
<th>Parameter</th>
<th>Description</th>
</tr>
</thead>
<tbody>
<tr>
<td>10MBW_UTRA10MHz</td>
<td>10 MHz BW (UTRA 10 MHz)</td>
</tr>
<tr>
<td>10MBW_EUTRA10MHz</td>
<td>10 MHz BW (E-UTRA 10 MHz)</td>
</tr>
<tr>
<td>10MBW_ADV</td>
<td>10 MHz BW (Adv Mode)</td>
</tr>
<tr>
<td>15MBW_UTRA1M6HZ</td>
<td>15 MHz BW (UTRA 1.6 MHz)</td>
</tr>
<tr>
<td>15MBW_UTRA5MHZ</td>
<td>15 MHz BW (UTRA 5 MHz)</td>
</tr>
<tr>
<td>15MBW_UTRA10MHZ</td>
<td>15 MHz BW (UTRA 10 MHz)</td>
</tr>
<tr>
<td>15MBW_EUTRA15MHZ</td>
<td>15 MHz BW (E-UTRA 15 MHz)</td>
</tr>
<tr>
<td>15MBW_ADV</td>
<td>15 MHz BW (Adv Mode)</td>
</tr>
<tr>
<td>20MBW_UTRA1M6HZ</td>
<td>20 MHz BW (UTRA 1.6 MHz)</td>
</tr>
<tr>
<td>20MBW_UTRA5MHZ</td>
<td>20 MHz BW (UTRA 5 MHz)</td>
</tr>
<tr>
<td>20MBW_UTRA10MHZ</td>
<td>20 MHz BW (UTRA 10 MHz)</td>
</tr>
<tr>
<td>20MBW_EUTRA20MHZ</td>
<td>20 MHz BW (E-UTRA 20 MHz)</td>
</tr>
<tr>
<td>20MBW_ADV</td>
<td>20 MHz BW (Adv Mode)</td>
</tr>
<tr>
<td>When omitted:</td>
<td>5 MHz BW (E-UTRA 5 MHz)</td>
</tr>
</tbody>
</table>

When Standard is set to LTE TDD Uplink (ACP Measurement)

Parameter to be set

<table>
<thead>
<tr>
<th>Parameter</th>
<th>Description</th>
</tr>
</thead>
<tbody>
<tr>
<td>1M4BW_UTRA1M6HZ</td>
<td>1.4 MHz BW (UTRA 1.6 MHz)</td>
</tr>
<tr>
<td>1M4BW_EUTRA1M4HZ</td>
<td>1.4 MHz BW (E-UTRA 1.4 MHz)</td>
</tr>
<tr>
<td>3MBW_UTRA1M6HZ</td>
<td>3 MHz BW (UTRA 1.6 MHz)</td>
</tr>
<tr>
<td>3MBW_EUTRA3MHZ</td>
<td>3 MHz BW (E-UTRA 3 MHz)</td>
</tr>
<tr>
<td>5MBW_UTRA1M6HZ</td>
<td>5 MHz BW (UTRA 1.6 MHz)</td>
</tr>
<tr>
<td>5MBW_EUTRA5MHZ</td>
<td>5 MHz BW (E-UTRA 5 MHz)</td>
</tr>
<tr>
<td>10MBW_UTRA1M6HZ</td>
<td>10 MHz BW (UTRA 1.6 MHz)</td>
</tr>
<tr>
<td>10MBW_EUTRA10MHZ</td>
<td>10 MHz BW (E-UTRA 10 MHz)</td>
</tr>
<tr>
<td>15MBW_UTRA1M6HZ</td>
<td>15 MHz BW (UTRA 1.6 MHz)</td>
</tr>
<tr>
<td>15MBW_EUTRA15MHZ</td>
<td>15 MHz BW (E-UTRA 15 MHz)</td>
</tr>
<tr>
<td>20MBW_UTRA1M6HZ</td>
<td>20 MHz BW (UTRA 1.6 MHz)</td>
</tr>
<tr>
<td>20MBW_EUTRA20MHZ</td>
<td>20 MHz BW (E-UTRA 20 MHz)</td>
</tr>
<tr>
<td>When omitted:</td>
<td>1.4 MHz BW (UTRA 1.6 MHz)</td>
</tr>
</tbody>
</table>

When Standard is set to LTE Uplink/Downlink, and LTE TDD Uplink/Downlink (OBW measurement)

Parameter to be set

<table>
<thead>
<tr>
<th>Parameter</th>
<th>Description</th>
</tr>
</thead>
<tbody>
<tr>
<td>1M4BW</td>
<td>1.4 MHz Bandwidth</td>
</tr>
<tr>
<td>3MBW</td>
<td>3 MHz Bandwidth</td>
</tr>
<tr>
<td>5MBW</td>
<td>5 MHz Bandwidth</td>
</tr>
<tr>
<td>10MBW</td>
<td>10 MHz Bandwidth</td>
</tr>
<tr>
<td>15MBW</td>
<td>15 MHz Bandwidth</td>
</tr>
<tr>
<td>20MBW</td>
<td>20 MHz Bandwidth</td>
</tr>
<tr>
<td>When omitted:</td>
<td>5 MHz Bandwidth</td>
</tr>
</tbody>
</table>
When Standard is set to LTE Uplink/Downlink, and LTE TDD Uplink/Downlink (Channel Power measurement)

<table>
<thead>
<tr>
<th>Parameter</th>
</tr>
</thead>
<tbody>
<tr>
<td>MEAN_1M4BW</td>
</tr>
<tr>
<td>MEAN_3MBW</td>
</tr>
<tr>
<td>MEAN_5MBW</td>
</tr>
<tr>
<td>MEAN_10MBW</td>
</tr>
<tr>
<td>MEAN_15MBW</td>
</tr>
<tr>
<td>MEAN_20MBW</td>
</tr>
<tr>
<td>FILTERED_1M4BW</td>
</tr>
<tr>
<td>FILTERED_3MBW</td>
</tr>
<tr>
<td>FILTERED_5MBW</td>
</tr>
<tr>
<td>FILTERED_10MBW</td>
</tr>
<tr>
<td>FILTERED_15MBW</td>
</tr>
<tr>
<td>FILTERED_20MBW</td>
</tr>
</tbody>
</table>

When omitted: Mean Power 5 MHz BW

When Standard is set to LTE Uplink/Downlink, and LTE TDD Uplink/Downlink (Burst Average Power measurement)

<table>
<thead>
<tr>
<th>Parameter</th>
</tr>
</thead>
<tbody>
<tr>
<td>MEAN_1M4BW</td>
</tr>
<tr>
<td>MEAN_3MBW</td>
</tr>
<tr>
<td>MEAN_5MBW</td>
</tr>
<tr>
<td>MEAN_10MBW</td>
</tr>
<tr>
<td>MEAN_15MBW</td>
</tr>
</tbody>
</table>

When omitted: Mean Power 5 MHz BW

When Standard is set to LTE Downlink (Spectrum Emission Mask measurement)

<table>
<thead>
<tr>
<th>Parameter</th>
<th>Category A/B</th>
</tr>
</thead>
<tbody>
<tr>
<td>A_UNDER1G_1M4BW</td>
<td>&lt; 1 GHz</td>
</tr>
<tr>
<td>A_UNDER1G_3MBW</td>
<td>&lt; 1 GHz</td>
</tr>
<tr>
<td>A_UNDER1G_5MBW</td>
<td>&lt; 1 GHz</td>
</tr>
<tr>
<td>A_UNDER1G_10MBW</td>
<td>&lt; 1 GHz</td>
</tr>
<tr>
<td>A_UNDER1G_15MBW</td>
<td>&lt; 1 GHz</td>
</tr>
<tr>
<td>A_UNDER1G_20MBW</td>
<td>&lt; 1 GHz</td>
</tr>
<tr>
<td>A_OVER1G_1M4BW</td>
<td>&gt; 1 GHz</td>
</tr>
<tr>
<td>A_OVER1G_3MBW</td>
<td>&gt; 1 GHz</td>
</tr>
<tr>
<td>A_OVER1G_5MBW</td>
<td>&gt; 1 GHz</td>
</tr>
<tr>
<td>A_OVER1G_10MBW</td>
<td>&gt; 1 GHz</td>
</tr>
<tr>
<td>A_OVER1G_15MBW</td>
<td>&gt; 1 GHz</td>
</tr>
<tr>
<td>A_OVER1G_20MBW</td>
<td>&gt; 1 GHz</td>
</tr>
<tr>
<td>B_UNDER1G_1M4BW</td>
<td>&lt; 1 GHz</td>
</tr>
<tr>
<td>B_UNDER1G_3MBW</td>
<td>&lt; 1 GHz</td>
</tr>
<tr>
<td>B_UNDER1G_5MBW</td>
<td>&lt; 1 GHz</td>
</tr>
</tbody>
</table>

<table>
<thead>
<tr>
<th>Power Range</th>
</tr>
</thead>
<tbody>
<tr>
<td>1.4 MHz BW</td>
</tr>
<tr>
<td>3 MHz BW</td>
</tr>
<tr>
<td>5 MHz BW</td>
</tr>
<tr>
<td>10 MHz BW</td>
</tr>
<tr>
<td>15 MHz BW</td>
</tr>
<tr>
<td>20 MHz BW</td>
</tr>
</tbody>
</table>

<table>
<thead>
<tr>
<th>Power Range</th>
</tr>
</thead>
<tbody>
<tr>
<td>Category A</td>
</tr>
<tr>
<td>Category B</td>
</tr>
</tbody>
</table>

<table>
<thead>
<tr>
<th>Power Range</th>
</tr>
</thead>
<tbody>
<tr>
<td>1.4 MHz BW</td>
</tr>
<tr>
<td>3 MHz BW</td>
</tr>
<tr>
<td>5 MHz BW</td>
</tr>
<tr>
<td>10 MHz BW</td>
</tr>
<tr>
<td>15 MHz BW</td>
</tr>
<tr>
<td>20 MHz BW</td>
</tr>
<tr>
<td></td>
</tr>
</tbody>
</table>
### Measure Function

<table>
<thead>
<tr>
<th>Code</th>
<th>Category</th>
<th>Frequency Range</th>
<th>Bandwidth</th>
</tr>
</thead>
<tbody>
<tr>
<td>B_UNDER1G_10MBW</td>
<td>CategoryB</td>
<td>&lt; 1 GHz</td>
<td>10 MHz</td>
</tr>
<tr>
<td>B_UNDER1G_15MBW</td>
<td>CategoryB</td>
<td>&lt; 1 GHz</td>
<td>15 MHz</td>
</tr>
<tr>
<td>B_UNDER1G_20MBW</td>
<td>CategoryB</td>
<td>&lt; 1 GHz</td>
<td>20 MHz</td>
</tr>
<tr>
<td>B_OVER1G_1M4BW</td>
<td>CategoryB</td>
<td>&gt; 1 GHz</td>
<td>1.4 MHz</td>
</tr>
<tr>
<td>B_OVER1G_3MBW</td>
<td>CategoryB</td>
<td>&gt; 1 GHz</td>
<td>3 MHz</td>
</tr>
<tr>
<td>B_OVER1G_5MBW</td>
<td>CategoryB</td>
<td>&gt; 1 GHz</td>
<td>5 MHz</td>
</tr>
<tr>
<td>B_OVER1G_10MBW</td>
<td>CategoryB</td>
<td>&gt; 1 GHz</td>
<td>10 MHz</td>
</tr>
<tr>
<td>B_OVER1G_15MBW</td>
<td>CategoryB</td>
<td>&gt; 1 GHz</td>
<td>15 MHz</td>
</tr>
<tr>
<td>B_OVER1G_20MBW</td>
<td>CategoryB</td>
<td>&gt; 1 GHz</td>
<td>20 MHz</td>
</tr>
</tbody>
</table>

When omitted:

<table>
<thead>
<tr>
<th>Code</th>
<th>Category</th>
<th>Frequency Range</th>
<th>Bandwidth</th>
</tr>
</thead>
<tbody>
<tr>
<td></td>
<td>CategoryA</td>
<td>&gt; 1 GHz</td>
<td>5 MHz</td>
</tr>
</tbody>
</table>

**Notes:**

- **<1 GHz:** BandClass when frequency smaller than 1 GHz. Bands: Class 5, 6, 8, 12, 13, 14, 17
- **>1 GHz:** BandClass when frequency larger than 1 GHz. Bands: 1, 2, 3, 4, 7, 9, 10, 11

When Standard is set to LTE Uplink (Spectrum Emission Mask measurement):

<table>
<thead>
<tr>
<th>Pattern</th>
<th>Parameter to be set</th>
</tr>
</thead>
<tbody>
<tr>
<td>G_1_4M</td>
<td>General 1.4MHz</td>
</tr>
<tr>
<td>G_3M</td>
<td>General 3MHz</td>
</tr>
<tr>
<td>G_5M</td>
<td>General 5MHz</td>
</tr>
<tr>
<td>G_10M</td>
<td>General 10MHz</td>
</tr>
<tr>
<td>G_15M</td>
<td>General 15MHz</td>
</tr>
<tr>
<td>G_20M</td>
<td>General 20MHz</td>
</tr>
<tr>
<td>NS3_1_4M</td>
<td>NS-03 1.4MHz</td>
</tr>
<tr>
<td>NS3_3M</td>
<td>NS-03 3MHz</td>
</tr>
<tr>
<td>NS3_5M</td>
<td>NS-03 5MHz</td>
</tr>
<tr>
<td>NS3_10M</td>
<td>NS-03 10MHz</td>
</tr>
<tr>
<td>NS3_15M</td>
<td>NS-03 15MHz</td>
</tr>
<tr>
<td>NS3_20M</td>
<td>NS-03 20MHz</td>
</tr>
<tr>
<td>NS4_1_4M</td>
<td>NS-04 1.4MHz</td>
</tr>
<tr>
<td>NS4_3M</td>
<td>NS-04 3MHz</td>
</tr>
<tr>
<td>NS4_5M</td>
<td>NS-04 5MHz</td>
</tr>
<tr>
<td>NS4_10M</td>
<td>NS-04 10MHz</td>
</tr>
<tr>
<td>NS4_15M</td>
<td>NS-04 15MHz</td>
</tr>
<tr>
<td>NS4_20M</td>
<td>NS-04 20MHz</td>
</tr>
<tr>
<td>NS6_1_4M</td>
<td>NS-06/07 1.4MHz</td>
</tr>
<tr>
<td>NS6_3M</td>
<td>NS-06/07 3MHz</td>
</tr>
<tr>
<td>NS6_5M</td>
<td>NS-06/07 5MHz</td>
</tr>
<tr>
<td>NS6_10M</td>
<td>NS-06/07 10MHz</td>
</tr>
<tr>
<td>JAPAN_5M</td>
<td>JAPAN 5MHz</td>
</tr>
</tbody>
</table>
Chapter 2  SCPI Device Message Details

JAPAN_10M  JAPAN 10MHz
JAPAN_15M  JAPAN 15MHz
JAPAN_20M  JAPAN 20MHz

When omitted: General 5MHz

When Standard is set to LTE TDD Uplink (Spectrum Emission Mask measurement)

<table>
<thead>
<tr>
<th>Parameter to be set</th>
<th>Value</th>
</tr>
</thead>
<tbody>
<tr>
<td>G_1_4M</td>
<td>General 1.4MHz</td>
</tr>
<tr>
<td>G_3M</td>
<td>General 3MHz</td>
</tr>
<tr>
<td>G_5M</td>
<td>General 5MHz</td>
</tr>
<tr>
<td>G_10M</td>
<td>General 10MHz</td>
</tr>
<tr>
<td>G_15M</td>
<td>General 15MHz</td>
</tr>
<tr>
<td>G_20M</td>
<td>General 20MHz</td>
</tr>
<tr>
<td>NS3_1_4M</td>
<td>NS-03 1.4MHz</td>
</tr>
<tr>
<td>NS3_3M</td>
<td>NS-03 3MHz</td>
</tr>
<tr>
<td>NS3_5M</td>
<td>NS-03 5MHz</td>
</tr>
<tr>
<td>NS3_10M</td>
<td>NS-03 10MHz</td>
</tr>
<tr>
<td>NS3_15M</td>
<td>NS-03 15MHz</td>
</tr>
<tr>
<td>NS3_20M</td>
<td>NS-03 20MHz</td>
</tr>
<tr>
<td>NS4_1_4M</td>
<td>NS-04 1.4MHz</td>
</tr>
<tr>
<td>NS4_3M</td>
<td>NS-04 3MHz</td>
</tr>
<tr>
<td>NS4_5M</td>
<td>NS-04 5MHz</td>
</tr>
<tr>
<td>NS4_10M</td>
<td>NS-04 10MHz</td>
</tr>
<tr>
<td>NS4_15M</td>
<td>NS-04 15MHz</td>
</tr>
<tr>
<td>NS4_20M</td>
<td>NS-04 20MHz</td>
</tr>
<tr>
<td>NS6_1_4M</td>
<td>NS-06/07 1.4MHz</td>
</tr>
<tr>
<td>NS6_3M</td>
<td>NS-06/07 3MHz</td>
</tr>
<tr>
<td>NS6_5M</td>
<td>NS-06/07 5MHz</td>
</tr>
<tr>
<td>NS6_10M</td>
<td>NS-06/07 10MHz</td>
</tr>
</tbody>
</table>

When omitted: General 5MHz

When Standard is set to ETC_DSRC (Applies to all but Burst Average Power, Spectrum Emission Mask measurement)

<table>
<thead>
<tr>
<th>Parameter to be set</th>
<th>Value</th>
</tr>
</thead>
<tbody>
<tr>
<td>PI4DQPSK</td>
<td>$\pi/4$DQPSK</td>
</tr>
<tr>
<td>ASK</td>
<td>ASK</td>
</tr>
</tbody>
</table>

When omitted: $\pi/4$DQPSK

When Standard is set to ETC_DSRC (Burst Average Power measurement)

<table>
<thead>
<tr>
<th>Parameter to be set</th>
<th>Value</th>
</tr>
</thead>
<tbody>
<tr>
<td>MEAN</td>
<td>Mean Power</td>
</tr>
</tbody>
</table>

When omitted: Mean Power
2.8 Measure Function

When Standard is set to TD-SCDMA (ACP Measurement)

- Parameter to be set
  - TDD128M1C: Single Carrier
  - TDD128M2C: 2 Carriers
  - TDD128M3C: 3 Carriers
  - TDD128M4C: 4 Carriers
  - TDD128M5C: 5 Carriers
  - TDD128M6C: 6 Carriers
- When omitted: Single Carrier

When Standard is set to TD-SCDMA (CHP, OBW Measurement)

- Parameter to be set
  - TDD128M: 3GPP TDD 1.28 Mcps Option
- When omitted: 3GPP TDD 1.28 Mcps Option

When Standard is set to TD-SCDMA (Burst Average Power Measurement)

- Parameter to be set
  - MEAN: 5 ms Subframe
  - (Power measurement of 1 subframe)
- When omitted: 5 ms Subframe

When Standard is set to TD-SCDMA (Spectrum Emission Mask Measurement)

- Parameter to be set
  - DLT34: DL Trace Point Tune $34 \text{ dBm} \leq P$
  - DLT26: DL Trace Point Tune $26 \text{ dBm} \leq P < 34 \text{ dBm}$
  - DLT26U: DL Trace Point Tune $P < 26 \text{ dBm}$
  - ULT53: UL Trace Point Tune $-53.5 \text{ dBm} \leq P$
  - ULT55: UL Trace Point Tune $-55 \text{ dBm} \leq P$
  - DL34: Downlink Actual $34 \text{ dBm} \leq P$
  - DL26: Downlink Actual $26 \text{ dBm} \leq P < 34 \text{ dBm}$
  - DL26U: Downlink Actual $P < 26 \text{ dBm}$
  - UL53: Uplink Actual $-53.5 \text{ dBm} \leq P$
  - UL55: Uplink Actual $-55 \text{ dBm} \leq P$
  - DLF34: Downlink Fast $34 \text{ dBm} \leq P$
  - DLF26: Downlink Fast $26 \text{ dBm} \leq P < 34 \text{ dBm}$
  - DLF26U: Downlink Fast $P < 26 \text{ dBm}$
  - ULF53: Uplink Fast $-53.5 \text{ dBm} \leq P$
  - ULF55: Uplink Fast $-55 \text{ dBm} \leq P$
- When omitted: DL Trace Point Tune $34 \text{ dBm} \leq P$

When Standard is set to XG-PHS (OBW Measurement)

- Parameter to be set
Chapter 2  SCPI Device Message Details

10MBW  10 MHz BW
20MBW  20 MHz BW
When omitted:  10 MHz BW

When Standard is set to XG-PHS (CHP Measurement)

Parameter to be set
MEAN_10MBW  Mean Power 10 MHz BW
MEAN_20MBW  Mean Power 20 MHz BW
When omitted:  Mean Power 10 MHz BW

When Standard is set to XG-PHS (Spectrum Emission Mask Measurement)

Parameter to be set
BS_10MBW  Base station channel interval: 10 MHz
UE_10MBW  Mobile station channel interval: 10 MHz
When omitted:  Base station channel interval: 10 MHz

When Standard is set to CDMA2000 Forward Link (ACP, Burst Average, Channel Power, OBW measurement)

Parameter to be set
CDMA2KFWD  CDMA2000 Forward Link
When omitted:  CDMA2000 Forward Link

When Standard is set to CDMA2000 Forward Link (Spectrum Emission Mask measurement)

Parameter to be set
BC0_PLT28  Band Class 0,2,5,7,9,10 (Pout < 28 dBm)
BC0_PLT33  Band Class 0,2,5,7,9,10 (28 dBm ≤ Pout < 33 dBm)
BC0_PGT33  Band Class 0,2,5,7,9,10 (Pout ≥ 33 dBm)
BC1_PLT28  Band Class 1,4,8,14,15 (Pout < 28 dBm)
BC1_PLT33  Band Class 1,4,8,14,15 (28 dBm ≤ Pout < 33 dBm)
BC1_PGT33  Band Class 1,4,8,14,15 (Pout ≥ 33 dBm)
BC6  Band Class 6 (Pout < 28 dBm)
BC6_PLT33  Band Class 6 (28 dBm ≤ Pout < 33 dBm)
BC6_PGT33  Band Class 6 (Pout ≥ 33 dBm)
BC11  Band Class 11,12
When omitted:  Band Class 0,2,5,7,9,10
(Pout < 28 dBm)

When Standard is set to EV-DO Forward Link (ACP, Burst Average, Channel Power, OBW measurement)

Parameter to be set
2.8 Measure Function

EVDOFWD
When omitted: EV-DO Forward Link

When Standard is set to EV-DO Forward Link (Spectrum Emission Mask measurement)

Parameter to be set
- BC0 Band Class 0,2,5,7,9,10
- BC1 Band Class 1,4,14,15
- BC6 Band Class 6,8,13
- BC11 Band Class 11,12
When omitted: Band Class 0,2,5,7,9,10

When Standard is set to ISDB-Tmm (Channel Power measurement)

Parameter to be set
- MEAN_14M2BW 14.2 MHz BW
- MEAN_5M6BW 5.6 MHz BW
When omitted: 14.2 MHz BW

When Standard is set to ISDB-Tmm (OBW measurement)

Parameter to be set
- 14M2BW 14.2 MHz BW
- 5M6BW 5.6 MHz BW
When omitted: 14.2 MHz BW

When Standard is set to ISDB-Tmm (Spectrum Emission Mask measurement)

Parameter to be set
- 14M2BW 14.2 MHz BW
- 14M2BW_ABS 14.2 MHz BW (ABS)
- 5M6BW 5.6 MHz BW
When omitted: 14.2 MHz BW

When Standard is set to ISDB-TSB (Channel Power measurement)

Parameter to be set
- MEAN_3M9BW 3.9 MHz BW
When omitted: 3.9 MHz BW

When Standard is set to ISDB-TSB (OBW measurement)

Parameter to be set
- 3M9BW 3.9 MHz BW
When omitted: 3.9 MHz BW

When Standard is set to ISDB-TSB (Spectrum Emission Mask measurement)
Chapter 2  SCPI Device Message Details

Parameter to be set

3M9BW 3.9 MHz BW
When omitted: 3.9 MHz BW

When Standard is set to ISDB-T (Channel Power measurement)

Parameter to be set

MEAN_5M6BW 5.6 MHz BW
When omitted: 5.6 MHz BW

When Standard is set to ISDB-T (OBW measurement)

Parameter to be set

5M6BW 5.6 MHz BW
When omitted: 5.6 MHz BW

When Standard is set to ISDB-T (Spectrum Emission Mask measurement)

Parameter to be set

5M6BW 5.6 MHz BW
When omitted: 5.6 MHz BW

When Standard is set to WLAN (ACP measurement)

Parameter to be set

T403_18MSPAN TELC T-403 5 GHz Low Power Data Communication System Sweep Band 18 MHz
T403_19MSPAN TELC T-403 5 GHz Low Power Data Communication System Sweep Band 19 MHz
T403_38MSPAN TELC T-403 5 GHz Low Power Data Communication System Sweep Band 38 MHz
T403_78MSPAN TELC T-403 5 GHz Low Power Data Communication System Sweep Band 78 MHz
T405_20MBW TELC T-405 5 GHz Wireless Access System 20 MHz System
T405_40MBW TELC T-405 5 GHz Wireless Access System 40 MHz System
When omitted: TELC T-403 5 GHz Low Power Data Communication System Sweep Band 18 MHz

When Standard is set to WLAN (OBW measurement)

Parameter to be set

T401_DCCK TELC T-401 2.4 GHz Enhanced Low Power Data Communication System, Direct Sequence Spread Spectrum System
T401_OFDM TELC T-401 2.4 GHz Enhanced Low Power
2.8 Measure Function

Data Communication System, Orthogonal Frequency Division Multiplexing System

<table>
<thead>
<tr>
<th>Code</th>
<th>Description</th>
</tr>
</thead>
<tbody>
<tr>
<td>T403_20MBW</td>
<td>TELEC T-403 5 GHz Low Power Data Communication System 20 MHz System</td>
</tr>
<tr>
<td>T403_40MBW</td>
<td>TELEC T-403 5 GHz Low Power Data Communication System 40 MHz System</td>
</tr>
<tr>
<td>T403_80MBW</td>
<td>TELEC T-403 5 GHz Low Power Data Communication System 80 MHz System</td>
</tr>
<tr>
<td>T403_160MBW</td>
<td>TELEC T-403 5 GHz Low Power Data Communication System 160 MHz System</td>
</tr>
<tr>
<td>T405_20MBW</td>
<td>TELEC T-405 5 GHz Wireless Access System 20 MHz System</td>
</tr>
<tr>
<td>T405_40MBW</td>
<td>TELEC T-405 5 GHz Wireless Access System 40 MHz System</td>
</tr>
<tr>
<td>ETSI_OFDM_5MHZ</td>
<td>EN 301 893 4.3 Nominal Channel Bandwidth and Occupied Channel Bandwidth 5 MHz</td>
</tr>
<tr>
<td>ETSI_OFDM_10MHZ</td>
<td>EN 301 893 4.3 Nominal Channel Bandwidth and Occupied Channel Bandwidth 10 MHz</td>
</tr>
<tr>
<td>ETSI_OFDM_20MHZ</td>
<td>EN 301 893 4.3 Nominal Channel Bandwidth and Occupied Channel Bandwidth 20 MHz</td>
</tr>
<tr>
<td>ETSI_OFDM_40MHZ</td>
<td>EN 301 893 4.3 Nominal Channel Bandwidth and Occupied Channel Bandwidth 40 MHz</td>
</tr>
</tbody>
</table>

When omitted:

TELEC T-401 2.4 GHz Enhanced Low Power Data Communication System, Direct Sequence Spread Spectrum System

When Standard is set to WLAN (Spectrum Emission Mask measurement)

- **Parameter to be set**
  - W11A: IEEE802.11a
  - W11B: IEEE802.11b
  - W11GOFDM: IEEE802.11g OFDM
  - W11GDCCK: IEEE802.11g DSSS/CCK
  - W11GDOFDM: IEEE802.11g DSSS-OFDM
  - W11J20MHZ: IEEE802.11j 20 MHz
  - W11P20MHZ: IEEE802.11p 20 MHz
  - W11N20MHZ: IEEE802.11n 20 MHz (2.4 GHz)
  - W11N20MHZ5GHZ: IEEE802.11n 20 MHz (5 GHz)
  - W11N40MHZ: IEEE802.11n 40 MHz (2.4 GHz)
  - W11N40MHZ5GHZ: IEEE802.11n 40 MHz (5 GHz)
  - W11AC20MHZ: IEEE802.11ac 20 MHz
  - W11AC40MHZ: IEEE802.11ac 40 MHz
  - W11AC80MHZ: IEEE802.11ac 80 MHz
  - W11AC160MHZ: IEEE802.11ac 160 MHz
  - ETSI_OFDM_5MHZ
EN 301 893 4.5.2 Transmitter unwanted emissions within the 5 GHz RLAN bands 5 MHz

ETSI_OFDM_10MHZ
EN 301 893 4.5.2 Transmitter unwanted emissions within the 5 GHz RLAN bands 10 MHz

ETSI_OFDM_20MHZ
EN 301 893 4.5.2 Transmitter unwanted emissions within the 5 GHz RLAN bands 20 MHz

ETSI_OFDM_40MHZ
EN 301 893 4.5.2 Transmitter unwanted emissions within the 5 GHz RLAN bands 40 MHz

T403_18MHZ_5180_5240MHZ_LOWER
TELEC T-403 5 GHz Low Power Data Communication System 5180 to 5240 MHz Lower sideband,
OBW less than 18 MHz

T403_18MHZ_5180_5240MHZ_UPPER
TELEC T-403 5 GHz Low Power Data Communication System
5180 to 5240 MHz Upper sideband,
OBW less than 18 MHz

T403_18MHZ_5260_5320MHZ_LOWER
TELEC T-403 5 GHz Low Power Data Communication System
5180 to 5240 MHz Lower sideband,
OBW less than 18 MHz

T403_18MHZ_5260_5320MHZ_UPPER
TELEC T-403 5 GHz Low Power Data Communication System
5260 to 5320 MHz Upper sideband,
OBW more than 18 MHz, less than 19 MHz

T403_18_19MHZ_5180_5240MHZ_LOWER
TELEC T-403 5 GHz Low Power Data Communication System
5180 to 5240 MHz Lower sideband,
OBW more than 18 MHz, less than 19 MHz

T403_18_19MHZ_5180_5240MHZ_UPPER
TELEC T-403 5 GHz Low Power Data Communication System
5180 to 5240 MHz Upper sideband,
OBW more than 18 MHz, less than 19 MHz
T403_18_19MHZ_5260_5320MHZ_LOWER
TELEC T-403 5 GHz Low Power Data Communication System
5260 to 5320 MHz Lower sideband,
OBW more than 18 MHz, less than 19 MHz
T403_18_19MHZ_5260_5320MHZ_UPPER
TELEC T-403 5 GHz Low Power Data Communication System
5260 to 5320 MHz Upper sideband,
OBW more than 18 MHz, less than 19 MHz
T403_5190_5230MHZ_LOWER
TELEC T-403 5 GHz Low Power Data Communication System
5190 to 5230 MHz Lower sideband
T403_5190_5230MHZ_UPPER
TELEC T-403 5 GHz Low Power Data Communication System
5190 to 5230 MHz Upper sideband
T403_5270_5310MHZ_LOWER
TELEC T-403 5 GHz Low Power Data Communication System
5270 to 5310 MHz Lower sideband
T403_5270_5310MHZ_UPPER
TELEC T-403 5 GHz Low Power Data Communication System
5270 to 5310 MHz Upper sideband
T403_5210MHZ_LOWER
TELEC T-403 5 GHz Low Power Data Communication System
5210 MHz Lower sideband
T403_5210MHZ_UPPER
TELEC T-403 5 GHz Low Power Data Communication System
5210 MHz Upper sideband
T403_5290MHZ_LOWER
TELEC T-403 5 GHz Low Power Data Communication System
5290 MHz Lower sideband
T403_5290MHZ_UPPER
TELEC T-403 5 GHz Low Power Data Communication System
5290 MHz Upper sideband
T403_5250MHZ_LOWER
TELEC T-403 5 GHz Low Power Data
<table>
<thead>
<tr>
<th>Parameter</th>
<th>Description</th>
</tr>
</thead>
<tbody>
<tr>
<td>T403_5250MHZ_UPPER</td>
<td>5250 MHz Lower sideband</td>
</tr>
<tr>
<td>T403_5210MHZ_80-80_LOWER</td>
<td>5210 MHz 80+80 MHz Lower sideband</td>
</tr>
<tr>
<td>T403_5210MHZ_80-80_UPPER</td>
<td>5210 MHz 80+80 MHz Upper sideband</td>
</tr>
<tr>
<td>T403_5210_5530MHZ_LOWER</td>
<td>5210 to 5530 MHz Lower sideband</td>
</tr>
<tr>
<td>T403_5210_5610MHZ_UPPER</td>
<td>5210 to 5610 MHz Upper sideband</td>
</tr>
<tr>
<td>T403_5290MHZ_80-80_LOWER</td>
<td>5290 MHz 80+80 MHz Lower sideband</td>
</tr>
<tr>
<td>T403_5290_5530MHZ_LOWER</td>
<td>5290 to 5530 MHz Lower sideband</td>
</tr>
<tr>
<td>T403_5290_5610MHZ_UPPER</td>
<td>5290 to 5610 MHz Upper sideband</td>
</tr>
</tbody>
</table>

When omitted: W11A

When Standard is set to WLAN (Spurious Emission measurement)

- **Parameter to be set**
  - T401: TELEC T-401 2.4 GHz Enhanced Low Power Data Communication System
<table>
<thead>
<tr>
<th>Model</th>
<th>Description</th>
</tr>
</thead>
<tbody>
<tr>
<td>T402</td>
<td>TELEC T-402 2.4 GHz Low Power Data Communication System</td>
</tr>
<tr>
<td>T403_18MHz_5_2GHz</td>
<td>TELEC T-403 5 GHz Low Power Data Communication System 5.2 GHz OBW less than 18 MHz</td>
</tr>
<tr>
<td>T403_18MHz_5_3GHz</td>
<td>TELEC T-403 5 GHz Low Power Data Communication System 5.3 GHz OBW less than 18 MHz</td>
</tr>
<tr>
<td>T403_18MHz_5_6GHz</td>
<td>TELEC T-403 5 GHz Low Power Data Communication System 5.6 GHz OBW less than 18 MHz</td>
</tr>
<tr>
<td>T403_18_19MHz_5_2GHz</td>
<td>TELEC T-403 5 GHz Low Power Data Communication System 5.2 GHz OBW more than 18 MHz, less than 19 MHz</td>
</tr>
<tr>
<td>T403_18_19MHz_5_3GHz</td>
<td>TELEC T-403 5 GHz Low Power Data Communication System 5.3 GHz OBW more than 18 MHz, less than 19 MHz</td>
</tr>
<tr>
<td>T403_18_19MHz_5_6GHz</td>
<td>TELEC T-403 5 GHz Low Power Data Communication System 5.6 GHz OBW more than 18 MHz, less than 19 MHz</td>
</tr>
<tr>
<td>T403_19MHz_5_2GHz</td>
<td>TELEC T-403 5 GHz Low Power Data Communication System 5.2 GHz OBW more than 19 MHz</td>
</tr>
<tr>
<td>T403_19MHz_5_3GHz</td>
<td>TELEC T-403 5 GHz Low Power Data Communication System 5.3 GHz OBW more than 19 MHz</td>
</tr>
<tr>
<td>T403_19MHz_5_6GHz</td>
<td>TELEC T-403 5 GHz Low Power Data Communication System 5.6 GHz OBW more than 19 MHz</td>
</tr>
<tr>
<td>T403_38_78MHz_5_2GHz</td>
<td>TELEC T-403 5 GHz Low Power Data Communication System 5.2 GHz OBW more than 38 MHz, less than 78 MHz</td>
</tr>
<tr>
<td>T403_38_78MHz_5_3GHz</td>
<td>TELEC T-403 5 GHz Low Power Data</td>
</tr>
</tbody>
</table>
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Communication System 5.3 GHz OBW more than 38 MHz, less than 78 MHz
T403_38_78MHz_5_6GHz
TELEC T-403 5 GHz Low Power Data
Communication System 5.6 GHz OBW more than 38 MHz, less than 78 MHz
T403_78MHz_5_2GHz_5_3GHz
TELEC T-403 5 GHz Low Power Data
Communication System 5.2 GHz 5.3 GHz OBW more than 78 MHz
T403_78MHz_5_6GHz
TELEC T-403 5 GHz Low Power Data
Communication System 5.6 GHz OBW more than 38 MHz
T403_5500_5700M
TELEC T-403 5 GHz Low Power Data
Communication System, 5500 to 5700 MHz
T403_5510_5670M
TELEC T-403 5 GHz Low Power Data
Communication System, 5510 to 5670 MHz
T403_5530_5610M
TELEC T-403 5 GHz Low Power Data
Communication System, 5530 to 5610 MHz
T403_5570M
TELEC T-403 5 GHz Low Power Data
Communication System, 5570 MHz
T405_5MHz_4_9GHz
TELEC T-405 5 GHz Wireless Access System 5 MHz System 4,900 MHz to 4,950 MHz
T405_5MHz_5_0GHz
TELEC T-405 5 GHz Wireless Access System 5 MHz System 5,030 MHz to 5,060 MHz
T405_10MHz_4_9GHz
TELEC T-405 5 GHz Wireless Access System 10 MHz System 4,900 MHz to 4,950 MHz
T405_10MHz_5_0GHz
TELEC T-405 5 GHz Wireless Access System 10 MHz System 5,030 MHz to 5,060 MHz
T405_20MHz_4_9GHz_OFDM
TELEC T-405 5 GHz Wireless Access System 20 MHz System Orthogonal Frequency Division Multiplexing System 4,900 MHz to 5,000 MHz
T405_20MHz_4_9GHz_DCCK
TELEC T-405 5 GHz Wireless Access System 20 MHz System 4,900 MHz to 5,000 MHz
### Measure Function

MHz System Direct Sequence Spread Spectrum System 4,900 MHz to 5,000 MHz

**T405_20MHz_5_0GHz_OFDM**

TELEC T-405 5 GHz Wireless Access System 20 MHz System Orthogonal Frequency Division Multiplexing System 5,030 MHz to 5,091 MHz

**T405_20MHz_5_0GHz_DCCK**

TELEC T-405 5 GHz Wireless Access System 20 MHz System Direct Sequence Spread Spectrum System 5,030 MHz to 5,091 MHz

**T405_40MHz**

TELEC T-405 5 GHz Wireless Access System 40 MHz System

**FCC_15_407_5_15GHZ**

FCC PART 15.407 5.15-5.25 GHz Band

**FCC_15_407_5_25GHZ_TX**

FCC PART 15.407 5.25-5.35 GHz Band Transmitters

**FCC_15_407_5_25GHZ_DEVICES**

FCC PART 15.407 5.25-5.35 GHz Band Devices

**FCC_15_407_5_47GHZ**

FCC PART 15.407 5.47-5.725 GHz Band

**ETSI_301_893**

EN 301 893 4.5.1 Transmitter unwanted emissions outside the 5 GHz RLAN bands

**ETSI_300_328**

EN 300 328 4.3.6 Transmitter spurious emissions

When omitted: TELEC T-401 2.4 GHz Direct Sequence Spread Spectrum System

When Standard is set to LR-WPANs(IEEE802.15.4) (ACP Measurement)

*pattern>*

Parameter to be set

- **BPSK_950M**
  - BPSK 950MHz (ARIB STD-T96)
- **GFSK_950M_50K**
  - GFSK 950MHz 50ksps (ARIB STD-T96)
- **GFSK_950M_100K**
  - GFSK 950MHz 100ksps (ARIB STD-T96)
- **GFSK_950M_200K**
  - GFSK 950MHz 200ksps (ARIB STD-T96)
- **GFSK_920M_50K**
  - GFSK 920MHz 50ksps (ARIB STD-T108)
- **GFSK_920M_100K**
  - GFSK 920MHz 100ksps (ARIB STD-T108)
- **GFSK_920M_200K**
  - GFSK 920MHz 200ksps (ARIB STD-T108)
- **GFSK_50K_G**
  - GFSK 50ksps (IEEE802.15.4g_d7)
**Chapter 2  SCPI Device Message Details**

<table>
<thead>
<tr>
<th>Parameter</th>
<th>Description</th>
</tr>
</thead>
<tbody>
<tr>
<td>GFSK_100K_G</td>
<td>GFSK 100ksps (IEEE802.15.4g_d7)</td>
</tr>
<tr>
<td>GFSK_200K_G</td>
<td>GFSK 200ksps (IEEE802.15.4g_d7)</td>
</tr>
<tr>
<td>BPSK_950M</td>
<td>BPSK 950MHz (ARIB STD-T96)</td>
</tr>
<tr>
<td>GFSK_950M_50K</td>
<td>GFSK 950MHz 50ksps (ARIB STD-T96)</td>
</tr>
<tr>
<td>GFSK_950M_100K</td>
<td>GFSK 950MHz 100ksps (ARIB STD-T96)</td>
</tr>
<tr>
<td>GFSK_950M_200K</td>
<td>GFSK 950MHz 200ksps (ARIB STD-T96)</td>
</tr>
<tr>
<td>GFSK_920M_50K</td>
<td>GFSK 920MHz 50ksps (ARIB STD-T108)</td>
</tr>
<tr>
<td>GFSK_920M_100K</td>
<td>GFSK 920MHz 100ksps (ARIB STD-T108)</td>
</tr>
<tr>
<td>GFSK_920M_200K</td>
<td>GFSK 920MHz 200ksps (ARIB STD-T108)</td>
</tr>
</tbody>
</table>

**When Standard is set to LR-WPANs(IEEE802.15.4)** (Spectrum Emission Mask Measurement)

<table>
<thead>
<tr>
<th>Parameter</th>
<th>Description</th>
</tr>
</thead>
<tbody>
<tr>
<td>O-QPSK_2450M</td>
<td>O-QPSK 2450MHz (IEEE802.15.4-2011)</td>
</tr>
<tr>
<td>BPSK_950M</td>
<td>BPSK 950MHz (ARIB STD-T96)</td>
</tr>
<tr>
<td>GFSK_950M_50K</td>
<td>GFSK 950MHz 50ksps (ARIB STD-T96)</td>
</tr>
<tr>
<td>GFSK_950M_100K</td>
<td>GFSK 950MHz 100ksps (ARIB STD-T96)</td>
</tr>
<tr>
<td>GFSK_950M_200K</td>
<td>GFSK 950MHz 200ksps (ARIB STD-T96)</td>
</tr>
<tr>
<td>GFSK_920M_50K</td>
<td>GFSK 920MHz 50ksps (ARIB STD-T108)</td>
</tr>
<tr>
<td>GFSK_920M_100K</td>
<td>GFSK 920MHz 100ksps (ARIB STD-T108)</td>
</tr>
<tr>
<td>GFSK_920M_200K</td>
<td>GFSK 920MHz 200ksps (ARIB STD-T108)</td>
</tr>
<tr>
<td>O-QPSK_2450M</td>
<td>O-QPSK 2450MHz (IEEE802.15.4-2011)</td>
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</table>

**When Standard is set to APCO P25** (ACP Measurement)

<table>
<thead>
<tr>
<th>Parameter</th>
<th>Description</th>
</tr>
</thead>
<tbody>
<tr>
<td>EXCEPT_700MHZ-BAND</td>
<td>Except 700MHz-band</td>
</tr>
<tr>
<td>700MHZ-BW-6.25KHZ</td>
<td>700MHz-BW-6.25kHz</td>
</tr>
<tr>
<td>700MHZ-BW-25KHZ</td>
<td>700MHz-BW-25kHz</td>
</tr>
<tr>
<td>700MHZ-BW-100KHZ</td>
<td>700MHz-BW-100kHz</td>
</tr>
<tr>
<td>Except 700MHz-band</td>
<td>Except 700MHz-band</td>
</tr>
</tbody>
</table>

**When Standard is set to APCO P25** (Spectrum Emission Mask Measurement)

<table>
<thead>
<tr>
<th>Parameter</th>
<th>Description</th>
</tr>
</thead>
<tbody>
<tr>
<td>FCC_12.5KHZ</td>
<td>FCC 12.5kHz</td>
</tr>
<tr>
<td>NTIA_12.5KHZ</td>
<td>NTIA 12.5kHz</td>
</tr>
<tr>
<td>FCC 12.5kHz</td>
<td>FCC 12.5kHz</td>
</tr>
</tbody>
</table>

**When Standard is set to Microlink ETSI** (Spectrum Emission Mask Measurement)

<table>
<thead>
<tr>
<th>Parameter</th>
<th>Description</th>
</tr>
</thead>
<tbody>
<tr>
<td>7M2</td>
<td>CS:7MHz Class:2</td>
</tr>
<tr>
<td>7M4L3-17G</td>
<td>CS:7MHz Class:4L</td>
</tr>
<tr>
<td>Frequency Band:3G-17GHz</td>
<td></td>
</tr>
<tr>
<td>7M4L17-30G</td>
<td>CS:7MHz Class:4L</td>
</tr>
<tr>
<td>Frequency Band:17G-30GHz</td>
<td></td>
</tr>
<tr>
<td>7M4LABV30G</td>
<td>CS:7MHz Class:4L</td>
</tr>
<tr>
<td>Frequency Band:above30GHz</td>
<td></td>
</tr>
<tr>
<td>7M5B3-17G</td>
<td>CS:7MHz Class:5B</td>
</tr>
<tr>
<td>Code</td>
<td>Frequency Band</td>
</tr>
<tr>
<td>------------</td>
<td>----------------------</td>
</tr>
<tr>
<td>7M5B17-30G</td>
<td>3G-17GHz</td>
</tr>
<tr>
<td>7M5BABV30G</td>
<td>17G-30GHz</td>
</tr>
<tr>
<td>14M2</td>
<td>14MHz</td>
</tr>
<tr>
<td>14M4L3-17G</td>
<td>3G-17GHz</td>
</tr>
<tr>
<td>14M4L17-30G</td>
<td>3G-17GHz</td>
</tr>
<tr>
<td>14M5B3-17G</td>
<td>17G-30GHz</td>
</tr>
<tr>
<td>14M5B17-30G</td>
<td>17G-30GHz</td>
</tr>
<tr>
<td>14M5BABV30G</td>
<td>above30GHz</td>
</tr>
<tr>
<td>28M2</td>
<td>7MHz</td>
</tr>
<tr>
<td>28M4L3-17G</td>
<td>3G-17GHz</td>
</tr>
<tr>
<td>28M4L17-30G</td>
<td>above30GHz</td>
</tr>
<tr>
<td>28M4LABV30G</td>
<td>above30GHz</td>
</tr>
<tr>
<td>28M4H3-17G</td>
<td>3G-17GHz</td>
</tr>
<tr>
<td>28M4H17-30G</td>
<td>above30GHz</td>
</tr>
<tr>
<td>28M4HABV30G</td>
<td>above30GHz</td>
</tr>
<tr>
<td>28M5A6A3-17G</td>
<td>3G-17GHz</td>
</tr>
<tr>
<td>28M5A6A17-30G</td>
<td>3G-17GHz</td>
</tr>
<tr>
<td>28M5A6AABV30G</td>
<td>above30GHz</td>
</tr>
<tr>
<td>28M5B6B3-17G</td>
<td>3G-17GHz</td>
</tr>
<tr>
<td>28M5B6B17-30G</td>
<td>3G-17GHz</td>
</tr>
<tr>
<td>28M5B6BABV30G</td>
<td>above30GHz</td>
</tr>
<tr>
<td>56M4L3-17G</td>
<td>56MHz</td>
</tr>
<tr>
<td>Frequency Band: 3G-17GHz</td>
<td>56M4L17-30G</td>
</tr>
<tr>
<td>Frequency Band: 17G-30GHz</td>
<td>56M4LABV30G</td>
</tr>
<tr>
<td>Frequency Band: above 30GHz</td>
<td>56M5A6A3-17G</td>
</tr>
<tr>
<td>Frequency Band: 3G-17GHz</td>
<td>56M5A6A17-30G</td>
</tr>
<tr>
<td>Frequency Band: 17G-30GHz</td>
<td>56M5A6ABV30G</td>
</tr>
<tr>
<td>Frequency Band: above 30GHz</td>
<td>56M5B6B3-17G</td>
</tr>
<tr>
<td>Frequency Band: 3G-17GHz</td>
<td>56M5B6B17-30G</td>
</tr>
<tr>
<td>Frequency Band: above 30GHz</td>
<td>56M5B6BABV30G</td>
</tr>
</tbody>
</table>

When omitted: CS:7MHz  Class:2

When Standard is set to NXDN

(ACP Measurement)

<table>
<thead>
<tr>
<th>Parameter to be set</th>
<th>6.25kHz</th>
<th>12.5kHz</th>
</tr>
</thead>
<tbody>
<tr>
<td>BW-6_25KHZ</td>
<td>6.25kHz</td>
<td></td>
</tr>
<tr>
<td>BW-12_5KHZ</td>
<td>12.5kHz</td>
<td></td>
</tr>
</tbody>
</table>

When Standard is set to NXDN

(Spectrum Emission Mask Measurement)

<table>
<thead>
<tr>
<th>Parameter to be set</th>
<th>6.25kHz</th>
<th>12.5kHz</th>
</tr>
</thead>
<tbody>
<tr>
<td>47CFR-E_6_25KHZ</td>
<td>6.25kHz</td>
<td></td>
</tr>
<tr>
<td>47CFR-D_12_5KHZ</td>
<td>12.5kHz</td>
<td></td>
</tr>
</tbody>
</table>

Details

This command is not available when Standard is set to Off.

Example of Use

To set the ACP measurement parameter type to 3GPP W-CDMA Uplink.

RAD:STAN:LOAD ADJ, UPLINK
[:SENSe]:RADio:STANdard:LOAD? <function>
Load Standard Parameter Query

Function
This command queries the Measure function parameter. The parameter selected for the Standard setting differs.

Query
[:SENSe]:RADio:STANdard:LOAD? <function>

Response
<pattern>

Parameter
Refer to
[:SENSe]:RADio:STANdard:LOAD <function>[,<pattern>]

Details
If the Standard parameter is not selected or is set to Off, *** is returned.

Example of Use
To query ACP measurement parameter.
RAD:STAN:LOAD? ADJ
> UPLINK
Table 2.9-1 lists device messages for Adjacent Channel Power measurement.

<table>
<thead>
<tr>
<th>Function</th>
<th>Device Message</th>
</tr>
</thead>
<tbody>
<tr>
<td>Measure Adjacent Channel Power</td>
<td>[:SENSe]:ACPower[:STaTe] ON</td>
</tr>
<tr>
<td></td>
<td>[:SENSe]:ACPower[:STaTe]?</td>
</tr>
<tr>
<td></td>
<td>:CALCulate:ACPower[:STaTe] ON</td>
</tr>
<tr>
<td></td>
<td>:CALCulate:ACPower[:STaTe]?</td>
</tr>
<tr>
<td>Adjacent Channel Power Reference</td>
<td>[:SENSe]:ACPower:CARRier[1]:RCARRier &lt;integer&gt;</td>
</tr>
<tr>
<td>Carrier Select</td>
<td>[:SENSe]:ACPower:CARRier[1]:RCARRier?</td>
</tr>
<tr>
<td></td>
<td>:CALCulate:ACPower:CARRier[1]:RCARRier &lt;integer&gt;</td>
</tr>
<tr>
<td></td>
<td>:CALCulate:ACPower:CARRier[1]:RCARRier?</td>
</tr>
<tr>
<td>Adjacent Channel Power Reference</td>
<td>[:SENSe]:ACPower:CARRier[1]:RCARRier:METHod STOTal</td>
</tr>
<tr>
<td></td>
<td>[:SENSe]:ACPower:CARRier[1]:RCARRier:METHod?</td>
</tr>
<tr>
<td></td>
<td>:CALCulate:ACPower:CARRier[1]:RCARRier:METHod STOTal</td>
</tr>
<tr>
<td></td>
<td>:CALCulate:ACPower:CARRier[1]:RCARRier:METHod?</td>
</tr>
<tr>
<td>Adjacent Channel Power Noise Cancel</td>
<td>[:SENSe]:ACPower:CORRection:NOISe[:AUTO] ON</td>
</tr>
<tr>
<td></td>
<td>[:SENSe]:ACPower:CORRection:NOISe[:AUTO]?</td>
</tr>
<tr>
<td></td>
<td>:CALCulate:ACPower:CORRection:NOISe[:AUTO] ON</td>
</tr>
<tr>
<td></td>
<td>:CALCulate:ACPower:CORRection:NOISe[:AUTO]?</td>
</tr>
<tr>
<td>Adjacent Channel Power Offset</td>
<td>[:SENSe]:ACPower:OFFSet[1]:BANDwidth[:INTegration] &lt;freq&gt;</td>
</tr>
<tr>
<td>Channel Bandwidth</td>
<td>[:SENSe]:ACPower:OFFSet[1]:BANDwidth[:INTegration]?</td>
</tr>
<tr>
<td></td>
<td>:CALCulate:ACPower:OFFSet[1]:BANDwidth[:INTegration] &lt;freq&gt;</td>
</tr>
<tr>
<td></td>
<td>:CALCulate:ACPower:OFFSet[1]:BANDwidth[:INTegration]?</td>
</tr>
<tr>
<td>Adjacent Channel Power Carrier Bandwidth</td>
<td>[:SENSe]:ACPower:CARRier[1]:LIST:BANDwidth[:INTegration] &lt;freq&gt;</td>
</tr>
<tr>
<td></td>
<td>[:SENSe]:ACPower:CARRier[1]:LIST:BANDwidth[:INTegration]?</td>
</tr>
<tr>
<td></td>
<td>:CALCulate:ACPower:CARRier[1]:LIST:BANDwidth[:INTegration]?</td>
</tr>
<tr>
<td>Adjacent Channel Power In Band Center</td>
<td>[:SENSe]:ACPower:CARRier[1]:RCFRequency &lt;freq&gt;</td>
</tr>
<tr>
<td></td>
<td>[:SENSe]:ACPower:CARRier[1]:RCFRequency?</td>
</tr>
<tr>
<td></td>
<td>:CALCulate:ACPower:CARRier[1]:RCFRequency &lt;freq&gt;</td>
</tr>
<tr>
<td></td>
<td>:CALCulate:ACPower:CARRier[1]:RCFRequency?</td>
</tr>
<tr>
<td>Adjacent Channel Power Carrier Number</td>
<td>[:SENSe]:ACPower:CARRier[1]:COUNt &lt;integer&gt;</td>
</tr>
<tr>
<td></td>
<td>[:SENSe]:ACPower:CARRier[1]:COUNt?</td>
</tr>
<tr>
<td></td>
<td>:CALCulate: ACPower:CARRier[1]:COUNt &lt;integer&gt;</td>
</tr>
<tr>
<td></td>
<td>:CALCulate: ACPower:CARRier[1]:COUNt?</td>
</tr>
<tr>
<td>Adjacent Channel Power Carrier Spacing</td>
<td>[:SENSe]:ACPower:CARRier[1]:LIST:WIDTh &lt;freq&gt;</td>
</tr>
<tr>
<td></td>
<td>[:SENSe]:ACPower:CARRier[1]:LIST:WIDTh?</td>
</tr>
<tr>
<td></td>
<td>:CALCulate: ACPower:CARRier[1]:LIST:WIDTh &lt;freq&gt;</td>
</tr>
<tr>
<td></td>
<td>:CALCulate: ACPower:CARRier[1]:LIST:WIDTh?</td>
</tr>
<tr>
<td>Function</td>
<td>Device Message</td>
</tr>
<tr>
<td>----------</td>
<td>----------------</td>
</tr>
<tr>
<td><strong>Adjacent Channel Power Offset</strong></td>
<td>`[:SENSe]:ACPower:OFFSet[1]:LIST:STATe ON</td>
</tr>
<tr>
<td></td>
<td><code>[:SENSe]:ACPower:OFFSet[1]:LIST:STATe?</code></td>
</tr>
<tr>
<td></td>
<td>`:CALCulate:ACPower:OFFSet[1]:LIST:STATe ON</td>
</tr>
<tr>
<td></td>
<td><code>:CALCulate:ACPower:OFFSet[1]:LIST:STATe?</code></td>
</tr>
<tr>
<td><strong>Adjacent Channel Power Offset Frequency</strong></td>
<td><code>[:SENSe]:ACPower:OFFSet[1]:LIST[:FREQuency] &lt;freq&gt;,&lt;freq&gt;,&lt;freq&gt;</code></td>
</tr>
<tr>
<td></td>
<td><code>[:SENSe]:ACPower:OFFSet[1]:LIST[:FREQuency]?</code></td>
</tr>
<tr>
<td></td>
<td><code>:CALCulate:ACPower:OFFSet[1]:LIST[:FREQuency] &lt;freq&gt;,&lt;freq&gt;,&lt;freq&gt;</code></td>
</tr>
<tr>
<td></td>
<td><code>:CALCulate:ACPower:OFFSet[1]:LIST[:FREQuency]?</code></td>
</tr>
<tr>
<td><strong>Adjacent Channel Power Filter Type</strong></td>
<td>`[:SENSe]:ACPower:CARRier[1]:LIST:METHod IBW</td>
</tr>
<tr>
<td></td>
<td><code>[:SENSe]:ACPower:CARRier[1]:LIST:METHod?</code></td>
</tr>
<tr>
<td></td>
<td>`:CALCulate:ACPower:CARRier[1]:LIST:METHod IBW</td>
</tr>
<tr>
<td></td>
<td><code>:CALCulate:ACPower:CARRier[1]:LIST:METHod?</code></td>
</tr>
<tr>
<td><strong>Adjacent Channel Power Offset Filter Type</strong></td>
<td>`[:SENSe]:ACPower:FILTER[:RRC][:STATe] OFF</td>
</tr>
<tr>
<td></td>
<td><code>[:SENSe]:ACPower:FILTER[:RRC][:STATe]?</code></td>
</tr>
<tr>
<td></td>
<td>`:CALCulate:ACPower:FILTER[:RRC][:STATe] OFF</td>
</tr>
<tr>
<td></td>
<td><code>:CALCulate:ACPower:FILTER[:RRC][:STATe]?</code></td>
</tr>
<tr>
<td><strong>Adjacent Channel Power Offset Setup Mode</strong></td>
<td>`[:SENSe]:ACPower:ADVanced:OFFSet:MODE NORMal</td>
</tr>
<tr>
<td></td>
<td><code>[:SENSe]:ACPower:ADVanced:OFFSet:MODE?</code></td>
</tr>
<tr>
<td><strong>Adjacent Channel Power Offset Channel Bandwidth · Advanced Mode</strong></td>
<td><code>[:SENSe]:ACPower:ADVanced:OFFSet:BANDwidth[:INTegration] &lt;bandwidth&gt;,&lt;bandwidth&gt;,&lt;bandwidth&gt;,&lt;bandwidth&gt;,&lt;bandwidth&gt;,&lt;bandwidth&gt;</code></td>
</tr>
<tr>
<td></td>
<td><code>[:SENSe]:ACPower:ADVanced:OFFSet:BANDwidth[:INTegration]?</code></td>
</tr>
<tr>
<td><strong>Adjacent Channel Power Offset · Advanced Mode</strong></td>
<td>`[:SENSe]:ACPower:ADVanced:OFFSet:LIST:STATe ON</td>
</tr>
</tbody>
</table>
### Table 2.9-1  Device messages for Adjacent Channel Power measurement (Cont’d)

<table>
<thead>
<tr>
<th>Function</th>
<th>Device Message</th>
</tr>
</thead>
<tbody>
<tr>
<td>Adjacent Channel Power Offset Frequency</td>
<td>[:SENSe]:ACPower:ADVanced:OFFSet:LIST[:FREQuency]</td>
</tr>
<tr>
<td>· Advanced Mode</td>
<td>[:SENSe]:ACPower:ADVanced:OFFSet:LIST[:FREQuency]?</td>
</tr>
<tr>
<td>Adjacent Channel Power Offset Filter Type</td>
<td>[:SENSe]:ACPower:ADVanced:OFFSet:FILTER:TYPE</td>
</tr>
<tr>
<td>· Advanced Mode</td>
<td>[:SENSe]:ACPower:ADVanced:OFFSet:FILTER:TYPE?</td>
</tr>
<tr>
<td>Adjacent Channel Power Offset Rolloff Ratio</td>
<td>[:SENSe]:ACPower:ADVanced:FILTER[:RRC]:ALPHa</td>
</tr>
<tr>
<td>· Advanced Mode</td>
<td>[:SENSe]:ACPower:ADVanced:FILTER[:RRC]:ALPHa?</td>
</tr>
<tr>
<td>Adjacent Channel Power Result Type</td>
<td>DISPlay:ACPowere:RESult:TYPE CARRier</td>
</tr>
<tr>
<td></td>
<td>DISPlay:ACPowere:RESult:TYPE?</td>
</tr>
<tr>
<td>Adjacent Channel Power Rolloff Ratio</td>
<td>[:SENSe]:ACPower:CARRier[1]:LIST:FILTer:ALPHa &lt;real&gt;</td>
</tr>
<tr>
<td></td>
<td>[:SENSe]:ACPower:CARRier[1]:LIST:FILTer:ALPHa?</td>
</tr>
<tr>
<td></td>
<td>:CALCulate:ACPower:CARRier[1]:LIST:FILTer:ALPHa &lt;real&gt;</td>
</tr>
<tr>
<td></td>
<td>:CALCulate:ACPower:CARRier[1]:LIST:FILTer:ALPHa?</td>
</tr>
<tr>
<td>Adjacent Channel Power Offsets Rolloff Ratio</td>
<td>[:SENSe]:ACPower:FILTer[:RRC]:ALPHa &lt;real&gt;</td>
</tr>
<tr>
<td></td>
<td>[:SENSe]:ACPower:FILTer[:RRC]:ALPHa?</td>
</tr>
<tr>
<td></td>
<td>:CALCulate:ACPower:FILTer[:RRC]:ALPHa &lt;real&gt;</td>
</tr>
<tr>
<td></td>
<td>:CALCulate:ACPower:FILTer[:RRC]:ALPHa?</td>
</tr>
<tr>
<td>Adjacent Channel Power Configure</td>
<td>:CONFigure:ACP</td>
</tr>
<tr>
<td>Adjacent Channel Power Initiate</td>
<td>:INITiate:ACP</td>
</tr>
<tr>
<td>Adjacent Channel Power Read Fetch</td>
<td>:FETCh:ACP[n]?</td>
</tr>
</tbody>
</table>
Table 2.9-1  Device messages for Adjacent Channel Power measurement (Cont'd)

<table>
<thead>
<tr>
<th>Function</th>
<th>Device Message</th>
</tr>
</thead>
<tbody>
<tr>
<td>Adjacent Channel Power Read</td>
<td>:READ:ACP[n]?</td>
</tr>
<tr>
<td>Adjacent Channel Power Measure</td>
<td>:MEASURE:ACP[n]?</td>
</tr>
<tr>
<td>All Marker Off</td>
<td>:CALCULATE:ACPower:MARKer:OFF</td>
</tr>
<tr>
<td>Zone Marker Frequency (Time)</td>
<td>:CALCULATE:ACPower:MARKer[1]</td>
</tr>
<tr>
<td>Title Entry</td>
<td>:DISPLAY:ACPower:ANNOTation:TITLE:DATA &lt;string&gt;</td>
</tr>
<tr>
<td>Average Count</td>
<td>[:SENSe]:ACPower:AVERage:COUNT &lt;integer&gt;</td>
</tr>
<tr>
<td>Storage Mode</td>
<td>[:SENSe]:ACPower:AVERage[:STATe] ON</td>
</tr>
<tr>
<td>Resolution Bandwidth</td>
<td>[:SENSe]:ACPower:BANDwidth[:RESolution] &lt;freq&gt;</td>
</tr>
<tr>
<td>Resolution Bandwidth Auto/Manual</td>
<td>[:SENSe]:ACPower:BANDwidth[:RESolution]:AUTO ON</td>
</tr>
</tbody>
</table>
### Table 2.9-1  Device messages for Adjacent Channel Power measurement (Cont'd)

<table>
<thead>
<tr>
<th>Function</th>
<th>Device Message</th>
</tr>
</thead>
<tbody>
<tr>
<td><strong>Resolution Bandwidth Normal/CISPR</strong></td>
<td>[:SENSe]:ACPower:BANDwidth[:RESolution]:MODE NORMal</td>
</tr>
<tr>
<td></td>
<td>[:SENSe]:ACPower:BANDwidth[:RESolution]:MODE?</td>
</tr>
<tr>
<td></td>
<td>:CALCulate:ACPower:BANDwidth[:RESolution]:MODE NORMal</td>
</tr>
<tr>
<td></td>
<td>:CALCulate:ACPower:BANDwidth[:RESolution]:MODE?</td>
</tr>
<tr>
<td><strong>Video Bandwidth</strong></td>
<td>[:SENSe]:ACPower:BANDwidth:VIDeo &lt;freq&gt;</td>
</tr>
<tr>
<td></td>
<td>[:SENSe]:ACPower:BANDwidth:VIDeo?</td>
</tr>
<tr>
<td><strong>Video Bandwidth Auto/Manual</strong></td>
<td>[:SENSe]:ACPower:BANDwidth:VIDeo:AUTO OFF</td>
</tr>
<tr>
<td></td>
<td>[:SENSe]:ACPower:BANDwidth:VIDeo:AUTO?</td>
</tr>
<tr>
<td><strong>Detection Mode</strong></td>
<td>[:SENSe]:ACPower:DETector[:FUNCtion] NORMal</td>
</tr>
<tr>
<td></td>
<td>[:SENSe]:ACPower:DETector[:FUNCtion]?</td>
</tr>
<tr>
<td></td>
<td>:CALCulate:ACPower:DETector[:FUNCtion] NORMal</td>
</tr>
<tr>
<td></td>
<td>:CALCulate:ACPower:DETector[:FUNCtion]?</td>
</tr>
<tr>
<td><strong>Frequency Span</strong></td>
<td>[:SENSe]:ACPower:FREQuency:SPAN &lt;freq&gt;</td>
</tr>
<tr>
<td></td>
<td>[:SENSe]:ACPower:FREQuency:SPAN?</td>
</tr>
<tr>
<td><strong>Full Span</strong></td>
<td>[:SENSe]:ACPower:FREQuency:SPAN:FULL</td>
</tr>
<tr>
<td><strong>Trace Point</strong></td>
<td>[:SENSe]:ACPower:SWEep:POINts &lt;integer&gt;</td>
</tr>
<tr>
<td></td>
<td>[:SENSe]:ACPower:SWEep:POINts?</td>
</tr>
<tr>
<td><strong>Sweep Time</strong></td>
<td>[:SENSe]:ACPower:SWEep:TIME &lt;time&gt;</td>
</tr>
<tr>
<td></td>
<td>[:SENSe]:ACPower:SWEep:TIME?</td>
</tr>
<tr>
<td><strong>Sweep Time Auto/Manual</strong></td>
<td>[:SENSe]:ACPower:SWEep:TIME:AUTO OFF</td>
</tr>
<tr>
<td></td>
<td>[:SENSe]:ACPower:SWEep:TIME:AUTO?</td>
</tr>
<tr>
<td><strong>Relative To</strong></td>
<td>:CALCulate:ACPower:MARKer[1]</td>
</tr>
<tr>
<td></td>
<td>:CALCulate:ACPower:MARKer[1]</td>
</tr>
</tbody>
</table>
[SENSe]:ACPow[er][:STATe] ON|OFF|1|0
Measure Adjacent Channel Power

Function
This command executes Adjacent Channel Power measurement.

Command
[:SENSe]:ACPow[er][:STATe] <switch>

Parameter
<switch> ACP measurement On/Off
ON|1 Sets ACP measurement to On.
OFF|0 Sets ACP measurement to Off (Default).

Example of Use
To set the ACP measurement to On.
ACP ON

Related command
This command has the same function as the following command.
[:CALCulate:ACPow[er][:STATe]]

:CALCulate:ACPow[er][:STATe] ON|OFF|1|0
Measure Adjacent Channel Power

Function
This command executes Adjacent Channel Power measurement. Refer to [:SENSe]:ACPow[er][:STATe].

Related command
This command has the same function as the following command. [:SENSe]:ACPow[er][:STATe]
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[:SENSe]:ACPower[:STATe]?
Measure Adjacent Channel Power Query

Function
This command queries the On/Off state of the Adjacent Channel Power measurement.

Query
[:SENSe]:ACPower[:STATe]?

Response
<switch>

Parameter
<switch> ACP measurement On/Off
1 On
0 Off

Example of Use
To query the On/Off state of the ACP measurement.
ACP?
> 1

Related command
This command has the same function as the following command.
[:SENSe]:ACPower[:STATe]?

:CALCulate:ACPower[:STATe]?
Measure Adjacent Channel Power Query

Function
This command queries the setting of Adjacent Channel Power measurement.
Refer to
[:SENSe]:ACPower[:STATe]?

Related command
This command has the same function as the following command.
[:SENSe]:ACPower[:STATe]?
[:SENSe]:ACPower:CARRier[1]:RCARrier <integer>
Adjacent Channel Power Reference Carrier Select

Function
This command sets the reference carrier number for Adjacent Channel Power measurement.

Command
[:SENSe]:ACPower:CARRier[1]:RCARrier <integer>

Parameter
<integer> Reference carrier number
Range 1 to Carrier Number
Resolution 1
Suffix code None
Default 1

Example of Use
To set the reference carrier number of ACP measurement to 2.
ACP:CARR:RCAR 2

Related command
This command has the same function as the following command.
[:CALCulate]:ACPower:CARRier[1]:RCARrier

[:CALCulate]:ACPower:CARRier[1]:RCARrier <integer>
Adjacent Channel Power Reference Carrier Select

Function
This command sets the reference carrier number for Adjacent Channel Power measurement.
Refer to
[:SENSe]:ACPower:CARRier[1]:RCARrier.

Related command
This command has the same function as the following command.
[:SENSe]:ACPower:CARRier[1]:RCARrier
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[:SENSe]:ACPower:CARRier[1]:RCARrier?
Adjacent Channel Power Reference Carrier Select Query

Function

This command queries the reference carrier number for Adjacent Channel Power measurement.

Query

[:SENSe]:ACPower:CARRier[1]:RCARrier?

Response

<integer>

Parameter

<integer>  Reference carrier number
Range  1 to Carrier Number
Resolution  1
Suffix code  None

Example of Use

To query the reference carrier number for Adjacent Channel Power measurement.
ACP:CARRi1:RCAR?
> 2

Related command

This command has the same function as the following command.
[:SENSe]:ACPower:CARRier[1]:RCARrier?

:CALCulate:ACPower:CARRier[1]:RCARrier?
Adjacent Channel Power Reference Carrier Select Query

Function

This command queries the reference carrier number for Adjacent Channel Power measurement.
Refer to
[:SENSe]:ACPower:CARRier[1]:RCARrier?.

Related command

This command has the same function as the following command.
[:SENSe]:ACPower:CARRier[1]:RCARrier?
[:SENSe]:ACP:Power:CARRier[1]:RCARRier:METHod
STOTal|CTOTal|BSIDes|CSESelect

Adjacent Channel Power Reference

Function

This command sets the reference of the relative level display for ACP measurement.

Command

[:SENSe]:ACP:Power:CARRier[1]:RCARRier:METHod <method>

Parameter

- `<method>`: Reference method for the relative level display for ACP measurement.
  - STOTal: Sets the integral power on the entire screen as a reference (Span Total method).
  - CTOTal: Sets the total value of all carrier power as a reference (Carrier Total method)(Default).
  - BSIDes: Carrier power of the largest carrier number is used as a reference for the upper offset, while the carrier power of the smallest carrier number is used as reference (Both Sides of Carriers method).
  - CSESelect: Uses the carrier selected in Carrier Select as a reference.

Example of Use

To set the ACP measurement method to Carrier Total method.

ACP:CARR:RCAR:METH CTOT

Related command

This command has the same function as the following command.

:CALCulate:ACP:Power:CARRier[1]:RCARRier:METHod
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:CALCulate:ACPower:CARRier[1]:RCARRier:METHod
STOTal|CTOTal|BSIDes|CSELect
Adjacent Channel Power Reference

Function

This command sets the reference of the relative level display for Adjacent Channel Power measurement.
Refer to [:SENSe]:ACPower:CARRier[1]:RCARRier:METHod.

Related command

This command has the same function as the following command.
[:SENSe]:ACPower:CARRier[1]:RCARRier:METHod
[:SENSe]:ACPpowEr:CARRier[1]:RCARRier:METHod?

Adjacent Channel Power Reference Query

Function

This command queries the reference of the relative level display for Adjacent Channel Power measurement.

Query

[:SENSe]:ACPpowEr:CARRier[1]:RCARRier:METHod?

Response

<method>

Parameter

<method> Reference method for the relative level display for ACP measurement.

STOT Sets the integral power on the whole screen to the reference (Span Total method).

CTOT Sets the total value of all the carrier power to the reference (Carrier Total method)(Default).

BSID Upper offset uses the carrier power of the biggest carrier number as a reference, and the lower one uses the carrier power of the smallest carrier number as a reference (Both Sides of Carriers method).

CSEL Uses the carrier selected in Carrier Select as a reference.

Example of Use

To query ACP measurement method.

ACP:CARR:RCAR:METH?

> CTOT

Related command

This command has the same function as the following command.

:CALCulate:ACPpowEr:CARRier[1]:RCARRier:METHod?
Adjacent Channel Power Reference Query

Function

This command queries the reference of the relative level display for Adjacent Channel Power measurement.
Refer to [:SENSe]:ACPow:CARrier[1]:RCARrier:METHod?.

Related command

This command has the same function as the following command.
[:SENSe]:ACPow:CARrier[1]:RCARrier:METHod?
[:SENSe]:ACPower:CORRection:NOISe[:AUTO] ON|OFF|1|0

Adjacent Channel Power Noise Cancel

Function

This command sets whether to enable the noise canceling function.

Command

[:SENSe]:ACPower:CORRection:NOISe[:AUTO] <switch>

Parameter

<switch> Type of result display
  ON|1 Enables the noise canceling function.
  OFF|0 Disables the noise canceling function (Default).

Details

This command is fixed to Off and cannot be set in the following cases.

- ACP is Off.
- Standard is Off.
- Standard Parameter which can execute the noise canceling function is not set in Load Standard Parameter.
- Any of Span, RBW, Detection, Sweep Time, VBW (when Detection is not set to RMS), and VBW Mode (when VBW is not set to Off and when Detection is not set to RMS) has been changed from Standard Parameter.
- Scale Mode is Linear.

Example of Use

To disable the noise canceling function.
ACP:CORR:NOIS OFF

Related command

This command has the same function as the following command.
:CALCulate:ACPower:CORRection:NOISe[:AUTO]
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**:CALCulate:ACPower:CORRection:NOISe[:AUTO] ON|OFF|1|0**

Adjacent Channel Power Noise Cancel

**Function**
This command sets whether to enable the noise canceling function. Refer to [:SENSe]:ACPower:CORRection:NOISe[:AUTO].

**Related command**
This command has the same function as the following command.
[:SENSe]:ACPower:CORRection:NOISe[:AUTO]

**[:SENSe]:ACPower:CORRection:NOISe[:AUTO]?**

Adjacent Channel Power Noise Cancel Query

**Function**
This command queries whether the noise canceling function is enabled.

**Query**
[:SENSe]:ACPower:CORRection:NOISe[:AUTO]?

**Response**
<switch>

**Parameter**

<switch> Type of result display

1 Enables the noise canceling function.
0 Disables the noise canceling function.

**Details**
This command is fixed to Off and cannot be set in the following cases:
- ACP is Off.
- Standard is Off.
- Standard Parameter which can execute the noise canceling function is not set in Load Standard Parameter.
- Any of Span, RBW, Detection, Sweep Time, VBW (when Detection is not set to RMS), and VBW Mode (when VBW is not set to Off and when Detection is not set to RMS) has been changed from Standard Parameter.
- Scale Mode is Linear.
Example of Use

To query the noise canceling function On/Off state.
ACP:CORR:NOIS?
> 0

Related command

This command has the same function as the following command.
:CALCulate:ACPower:CORRection:NOISe[:AUTO]?

:CALCulate:ACPower:CORRection:NOISe[:AUTO]?
Adjacent Channel Power Noise Cancel Query

Function

This command queries whether to apply the noise canceling function. Refer to [:SENSe]:ACPower:CORRection:NOISe[:AUTO]?.

Related command

This command has the same function as the following command.
[:SENSe]:ACPower:CORRection:NOISe[:AUTO]?

[:SENSe]:ACPower:OFFSet[1]:BANDwidth[:INTegration] <freq>
Adjacent Channel Power Offset Channel Bandwidth

Function

This command sets the Offset Channel bandwidth for Adjacent Channel Power measurement.

Command

[:SENSe]:ACPower:OFFSet[1]:BANDwidth[:INTegration] <freq>

Parameter

<table>
<thead>
<tr>
<th>&lt;freq&gt;</th>
<th>Offset Channel bandwidth</th>
</tr>
</thead>
<tbody>
<tr>
<td>Range</td>
<td>1 to 1000000000 Hz</td>
</tr>
<tr>
<td>Resolution</td>
<td>1 Hz</td>
</tr>
<tr>
<td>Suffix code</td>
<td>HZ,KHZ,KZ, MHZ, MZ, GHZ, GZ</td>
</tr>
<tr>
<td></td>
<td>Hz is used when omitted.</td>
</tr>
<tr>
<td>Default</td>
<td>3.84 MHz</td>
</tr>
</tbody>
</table>
Example of Use

To set the offset channel bandwidth to 3.84 MHz.
ACP:OFF:S:BW 3.84MHZ

Related command

This command has the same function as the following command.
:CALCulate:ACPower:OFFSet[1]:BANDwidth[:INTegration]

:CALCulate:ACPower:OFFSet[1]:BANDwidth[:INTegration] <freq>
Adjacent Channel Power Offset Channel Bandwidth

Function

This command sets the Offset Channel bandwidth for Adjacent Channel Power measurement.
Refer to
[:SENSe]:ACPower:OFFSet[1]:BANDwidth[:INTegration].

Related command

This command has the same function as the following command.
[:SENSe]:ACPower:OFFSet[1]:BANDwidth[:INTegration]

[:SENSe]:ACPower:OFFSet[1]:BANDwidth[:INTegration]?
Adjacent Channel Power Offset Channel Bandwidth Query

Function

This command queries the Offset Channel bandwidth for Adjacent Channel Power measurement.

Query

[:SENSe]:ACPower:OFFSet[1]:BANDwidth[:INTegration]?

Response

<freq>

Parameter

<freq> Offset Channel bandwidth
Range 1 to 1000000000 Hz
Resolution 1 Hz
Suffix code None. Value is returned in Hz units.
Example of Use

To query the Offset Channel bandwidth.
ACP:OFFS:BAND?
> 3840000

Related command

This command has the same function as the following command.
ACP:OFFS:BAND?

:CALCulate:ACP:OFFSet[1]:BANDwidth[:INTegration]?

Adjacent Channel Power Offset Channel Bandwidth Query

Function

This command queries the Offset Channel bandwidth for Adjacent Channel Power measurement.
Refer to
[:SENSe]:ACP:OFFSet[1]:BANDwidth[:INTegration]?

Related command

This command has the same function as the following command.
[:SENSe]:ACP:OFFSet[1]:BANDwidth[:INTegration]?

[:SENSe]:ACP:OFFSet[1]:BANDwidth[:INTegration] <freq>

Adjacent Channel Power Carrier Bandwidth

Function

This command sets the carrier measurement bandwidth for ACP measurement.

Command

[:SENSe]:ACP:OFFSet[1]:BANDwidth[:INTegration] <freq>

Parameter

<table>
<thead>
<tr>
<th>&lt;freq&gt;</th>
<th>Inband channel bandwidth</th>
</tr>
</thead>
<tbody>
<tr>
<td>Range</td>
<td>1 to 1000000000 Hz</td>
</tr>
<tr>
<td>Resolution</td>
<td>1 Hz</td>
</tr>
<tr>
<td>Suffix code</td>
<td>HZ,KHZ,KZ,MHZ,MZ,GHZ,GZ</td>
</tr>
<tr>
<td>Hz is used when omitted.</td>
<td></td>
</tr>
<tr>
<td>Default</td>
<td>3.84 MHz</td>
</tr>
</tbody>
</table>
Example of Use

To set the inband channel bandwidth to 3.84 MHz.
ACP:CARR:BAND 3.84MHZ

Related command

This command has the same function as the following command.
:CALCulate:ACPower:CARRier[1]:LIST:BANDwidth[:INTEGRation]

:CALCulate:ACPower:CARRier[1]:LIST:BANDwidth[:INTEGRation] <freq>
Adjacent Channel Power Carrier Bandwidth

Function

This command sets the measurement bandwidth of the carrier for Adjacent Channel Power measurement.
Refer to
[:SENSe]:ACPower:CARRier[1]:LIST:BANDwidth[:INTEGRation]

Related command

This command has the same function as the following command.
[:SENSe]:ACPower:CARRier[1]:LIST:BANDwidth[:INTEGRation]
[:SENSe]:ACPower:CARRier[1]:LIST:BANDwidth[:INTegration]?
Adjacent Channel Power Carrier Bandwidth Query

Function
This command sets the measurement bandwidth of the carrier for Adjacent Channel Power measurement.

Query
[:SENSe]:ACPower:CARRier[1]:LIST:BANDwidth[:INTegration]?

Response
<freq>

Parameter
<freq> Inband channel bandwidth
Range 1 to 1000000000 Hz
Resolution 1 Hz
Suffix code None. Value is returned in Hz units.

Example of Use
To query the Inband channel bandwidth.
ACP:CARR:BAND?
> 3840000

Related command
This command has the same function as the following command.
:CALCulate:ACPower:CARRier[1]:LIST:BANDwidth[:INTegration]?
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:CALCulate:ACPower:CARRier[1]:LIST:BANDwidth[:INTegration]?
Adjacent Channel Power Carrier Bandwidth Query

Function

This command sets the measurement bandwidth of the carrier for Adjacent Channel Power measurement. Refer to [:SENSe]:ACPower:CARRier[1]:LIST:BANDwidth[:INTegration] ?.

Related command

This command has the same function as the following command. [:SENSe]:ACPower:CARRier[1]:LIST:BANDwidth[:INTegration] ?

[:SENSe]:ACPower:CARRier[1]:RCFRequency <freq>
Adjacent Channel Power In Band Center

Function

This command sets the In Band center frequency for Adjacent Channel Power measurement.

Command

[:SENSe]:ACPower:CARRier[1]:RCFRequency <freq>

Parameter

<table>
<thead>
<tr>
<th>&lt;freq&gt;</th>
<th>In Band center frequency</th>
</tr>
</thead>
<tbody>
<tr>
<td>Range</td>
<td>(Start Frequency) to (Stop Frequency)</td>
</tr>
<tr>
<td>Resolution</td>
<td>1 Hz</td>
</tr>
<tr>
<td>Suffix code</td>
<td>HZ,KHZ,KZ,MHZ,MZ,GHZ,GZ</td>
</tr>
<tr>
<td>Hz is used when omitted.</td>
<td></td>
</tr>
<tr>
<td>Default</td>
<td>Center Frequency</td>
</tr>
</tbody>
</table>

Example of Use

To set In Band center frequency to 3 GHz.
ACP:CARR:RCFR 3GHZ

Related command

This command has the same function as the following command. :CALCulate:ACPwr:CARRier[1]:RCFRequency
:CALCulate:ACPower:CARRier[1]:RCFRequency <freq>
Adjacent Channel Power In Band Center

Function
This command sets the In Band center frequency for Adjacent Channel Power measurement.
Refer to
[:SENSe]:ACPower:CARRier[1]:RCFRequency.

Related command
This command has the same function as the following command.
[:SENSe]:ACPower:CARRier[1]:RCFRequency

[:SENSe]:ACPower:CARRier[1]:RCFRequency?
Adjacent Channel Power In Band Center Query

Function
This command queries the In Band center frequency for Adjacent Channel Power measurement.

Query
[:SENSe]:ACPower:CARRier[1]:RCFRequency?

Response
<freq>

Parameter
<br>
Parameter
<freq> In Band center frequency
Range (Start Frequency) to (Stop Frequency)
Resolution 1 Hz
Suffix code None. Value is returned in Hz unit.

Example of Use
To query the In Band center frequency.
ACP:CARR:RCFR?
> 3000000000

Related command
This command has the same function as the following command.
:CALCulate:ACPower:CARRier[1]:RCFRequency?
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:CALCulate:ACPower:CARRier[1]:RCFRequency?
Adjacent Channel Power In Band Center Query

Function

This command queries the In Band center frequency for Adjacent Channel Power measurement.
Refer to [:SENSe]:ACPower:CARRier[1]:RCFRequency?.

Related command

This command has the same function as the following command.
[:SENSe]:ACPower:CARRier[1]:RCFRequency?

[:SENSe]:ACPower:CARRier[1]:COUNT <integer>
Adjacent Channel Power Carrier Number

Function

This command sets the carrier number for Adjacent Channel Power measurement.

Command

[:SENSe]:ACPower:CARRier[1]:COUNT <integer>

Parameter

<integer>  Carrier number  
Range  1 to 12
Resolution  1
Suffix code  None
Default  1

Details

This command is not available when ACP Reference is set to the following:
• Span Total

Example of Use

To set the carrier number to 12.
ACP:CARR:COUN 12

Related command

This command has the same function as the following command.
:CALCulate:ACPower:CARRier[1]:COUNT <integer>
:CALCulate: ACPower:CARRier[1]:COUNt <integer>
Adjacent Channel Power Carrier Number

Function

This command sets the carrier number for Adjacent Channel Power measurement.
Refer to [:SENSe]:ACPower:CARRier[1]:COUNt.

Related command

This command has the same function as the following command.
[:SENSe]:ACPower:CARRier[1]:COUNt?

[:SENSe]:ACPower:CARRier[1]:COUNt?
Adjacent Channel Power Carrier Number Query

Function

This command queries the carrier number for Adjacent Channel Power measurement.

Query

[:SENSe]:ACPower:CARRier[1]:COUNt?

Response

<integer>

Parameter

<integer> Carrier number
  Range 1 to 12
  Resolution 1
  Suffix code None

Details

The command is not available when ACP Reference is set to the following:
• Span Total

Example of Use

To query the carrier number.
ACP:CARR:COUN?
> 12
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Related command

This command has the same function as the following command.

:CALCulate:ACPower:CARRier[1]:COUNt?

:CALCulate:ACPower:CARRier[1]:COUNt?
Adjacent Channel Power Carrier Number Query

Function

This command queries the carrier number for Adjacent Channel Power measurement.
Refer to [:SENSe]:ACPower:CARRier[1]:COUNt?.

Related command

This command has the same function as the following command.
[:SENSe]:ACPower:CARRier[1]:COUNt?

[:SENSe]:ACPower:CARRier[1]:LIST:WIDTh <freq>
Adjacent Channel Power Carrier Spacing

Function

This command sets the frequency interval among carriers for Adjacent Channel Power measurement.

Command

[:SENSe]:ACPower:CARRier[1]:LIST:WIDTh <freq>

Parameter

<freq>  Frequency interval among carriers
Range  0 to 1000000000 Hz
Resolution  1 Hz
Suffix code  HZ,KHZ,KZ,MHZ,MZ,GHZ,GZ
Hz is used when omitted.
Default  5 MHz

Details

This command is not available when ACP Reference is set to the following:
• Span Total
Example of Use

To set the frequency interval among carriers to 12.3 MHz.
ACP:CARR:WIDT 12300000

Related command

This command has the same function as the following command.
:CALCulate:ACPower:CARRier[1]:LIST:WIDTh

:CALCulate:ACPower:CARRier[1]:LIST:WIDTh <freq>
Adjacent Channel Power Carrier Spacing

Function

This command sets the frequency interval among carriers for Adjacent
Channel Power measurement.
Refer to
[:SENSe]:ACPower:CARRier[1]:LIST:WIDTh.

Related command

This command has the same function as the following command.
[:SENSe]:ACPower:CARRier[1]:LIST:WIDTh

[:SENSe]:ACPower:CARRier[1]:LIST:WIDTh?
Adjacent Channel Power Carrier Spacing Query

Function

This command queries the frequency interval among carriers for Adjacent
Channel Power measurement.

Query

[:SENSe]:ACPower:CARRier[1]:LIST:WIDTh?

Response

<freq>

Parameter

<table>
<thead>
<tr>
<th>Parameter</th>
<th>Description</th>
</tr>
</thead>
<tbody>
<tr>
<td>&lt;freq&gt;</td>
<td>Frequency interval among carriers</td>
</tr>
<tr>
<td>Range</td>
<td>0 to 1000000000 Hz</td>
</tr>
<tr>
<td>Resolution</td>
<td>1 Hz</td>
</tr>
<tr>
<td>Suffix code</td>
<td>None. Value is returned in Hz units.</td>
</tr>
</tbody>
</table>
Details

This command is available when ACP Reference is set to the following:
- Span Total

Example of Use

To query the frequency interval among carriers.

ACP:CARR:WIDT?
> 12300000

Related command

This command has the same function as the following command.

:CALCulate:ACPower:CARRier[1]:LIST:WIDTh?

:CALCulate:ACPower:CARRier[1]:LIST:WIDTh?
Adjacent Channel Power Carrier Spacing Query

Function

This command sets the frequency interval among carriers for Adjacent Channel Power measurement.
Refer to

[:SENSe]:ACPower:CARRier[1]:LIST:WIDTh?.

Related command

This command has the same function as the following command.

[:SENSe]:ACPower:CARRier[1]:LIST:WIDTh?
[:SENSe]:ACPower:OFFSet[1]:LIST:STATe

ON|OFF|1|0,ON|OFF|1|0,ON|OFF|1|0

Adjacent Channel Power Offset

Function

This command sets offset channel On/Off for ACP measurement.

Command

[:SENSe]:ACPower:OFFSet[1]:LIST:STATe

<switch_1>,<switch_2>,<switch_3>

Parameter

<switch_n>  Measurement channel “n” On/Off
ON|1        Measures offset channel “n”.
OFF|0        Does not measure offset channel “n”.

Default
offset-1    On
offset-2    On
offset-3    Off

Example of Use

To set offset channel.
ACP:OFFS:LIST:STAT ON,ON,ON

Related command

This command has the same function as the following command.

[:CALCulate:ACPower:OFFSet[1]:LIST:STATe]

:CALCulate:ACPower:OFFSet[1]:LIST:STATe

ON|OFF|1|0,ON|OFF|1|0,ON|OFF|1|0

Adjacent Channel Power Offset

Function

This command sets offset channel On/Off for Adjacent Channel Power measurement.

Refer to

[:SENSe]:ACPower:OFFSet[1]:LIST:STATe.

Related command

This command has the same function as the following command.

[:SENSe]:ACPower:OFFSet[1]:LIST:STATe
[:SENSe]:ACPower:OFFSet[1]:LIST:STATe?
Adjacent Channel Power Offset Query

Function
This command queries the On/Off state of the offset channel for Adjacent Channel Power measurement.

Query
[:SENSe]:ACPower:OFFSet[1]:LIST:STATe?

Response
<switch_1>,<switch_2>,<switch_3>

Parameter
<switch_n> 
Measurement channel “n” On/Off
1 
Measures the offset channel “n”.
0 
Does not measure the offset channel “n”.

Example of Use
To query the On/Off state of the offset channel.
ACP:OFFS:LIST:STAT?
> 1,1,1

Related command
This command has the same function as the following command.
[:CALCulate]:ACPower:OFFSet[1]:LIST:STATe?

:CALCulate:ACPower:OFFSet[1]:LIST:STATe?
Adjacent Channel Power Offset Query

Function
This command queries the On/Off state of the offset channel for Adjacent Channel Power measurement.

Refer to
[:SENSe]:ACPower:OFFSet[1]:LIST:STATe?.

Related command
This command has the same function as the following command.
[:SENSe]:ACPower:OFFSet[1]:LIST:STATe?
Adjacent Channel Power Offset Frequency

Function

This command sets the offset frequency of Offset Channel for Adjacent Channel Power measurement.

Command

[:SENSe]:ACPower:OFFSet[1]:LIST[:FREQuency] <freq>,<freq>,<freq>

Parameter

<table>
<thead>
<tr>
<th>Parameter</th>
<th>Description</th>
</tr>
</thead>
<tbody>
<tr>
<td>&lt;freq_n&gt;</td>
<td>Offset frequency of offset channel “n”.</td>
</tr>
<tr>
<td>Range</td>
<td>–1000000000 to 1000000000 Hz</td>
</tr>
<tr>
<td>Resolution</td>
<td>1 Hz</td>
</tr>
<tr>
<td>Suffix code</td>
<td>HZ,KHZ,KZ,MHZ,MZ,GHZ,GZ</td>
</tr>
</tbody>
</table>

Hz is used when omitted.

Default

freq-1 5 MHz
freq-2 10 MHz
freq-3 15 MHz

Example of Use

To set the offset frequency of the offset channel.
ACP:OFFS:LIST 30KHZ,50KHZ,50KHZ

Related command

This command has the same function as the following command.
[:CALCulate:ACPower:OFFSet[1]:LIST[:FREQuency]]

Adjacent Channel Power Offset Frequency

Function

This command sets the offset frequency of Offset Channel for Adjacent Channel Power measurement.

Refer to [:SENSe]:ACPower:OFFSet[1]:LIST[:FREQuency].

Related command

This command has the same function as the following command.
[:SENSe]:ACPower:OFFSet[1]:LIST[:FREQuency]
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[:SENSe]:ACPower:OFFSet[1]:LIST[:FREQuency]?
Adjacent Channel Power Offset Frequency Query

Function
This command queries the offset frequency of Offset Channel for Adjacent Channel Power measurement.

Query
[:SENSe]:ACPower:OFFSet[1]:LIST[:FREQuency]?

Response
<freq_1>,<freq_2>,<freq_3>

Parameter
<freq_n>  Offset frequency of the offset channel “n”
Range       –1000000000 to 1000000000 Hz
Resolution  1 Hz
Suffix code None. Value is returned in Hz units.

Example of Use
To query the offset frequency of the offset channel.
ACP:OFFS:LIST?
> 30000,50000,50000

Related command
This command has the same function as the following command.
[:CALCulate:ACPower:OFFSet[1]:LIST[:FREQuency]]?

:CALCulate:ACPower:OFFSet[1]:LIST[:FREQuency]?
Adjacent Channel Power Offset Frequency Query

Function
This command queries the offset frequency of the offset channel for Adjacent Channel Power measurement.

Related command
This command has the same function as the following command.
[:SENSe]:ACPower:OFFSet[1]:LIST[:FREQuency]?
[:SENSe]:ACPower:CARRier[1]:LIST:METHod IBW|RRC|RC

Adjacent Channel Power Filter Type

Function

This command sets the filter type of the carrier for Adjacent Channel Power measurement.

Command

[:SENSe]:ACPower:CARRier[1]:LIST:METHod <method>

Parameter

<method>  Filter type of carrier
IBW       Rectangle filter
RRC       Root Nyquist filter (Default)
RC        Nyquist filter

Example of Use

To set the filter type of the carrier for ACP measurement to Root Nyquist.
ACP:CARR:METH RRC

Related command

This command has the same function as the following command.
[:SENSe]:ACPower:CARRier[1]:LIST:METHod

:CALCulate:ACPower:CARRier[1]:LIST:METHod IBW|RRC|RC

Adjacent Channel Power Filter Type

Function

This command sets filter type of the carrier for Adjacent Channel Power measurement.
Refer to [:SENSe]:ACPower:CARRier[1]:LIST:METHod.

Related command

This command has the same function as the following command.
[:SENSe]:ACPower:CARRier[1]:LIST:METHod
[:SENSe]:ACPower:CARRier[1]:LIST:METHod?
Adjacent Channel Power Filter Type Query

Function
This command queries the filter type of the carrier for Adjacent Channel Power measurement.

Query
[:SENSe]:ACPower:CARRier[1]|2:LIST:METHod?

Response
<mетод>

Parameter
<mетод> Filter type of carrier
IBW Rectangle filter
RRC Root Nyquist filter (Default)
RC Nyquist filter

Example of Use
To query the filter type of the carrier for ACP measurement.
ACP:CARR:METH?
> RRC

Related command
This command has the same function as the following command.
[:CALCulate:ACPower:CARRier[1]:LIST:METHod?]

:CALCulate:ACPower:CARRier[1]:LIST:METHod?
Adjacent Channel Power Filter Type Query

Function
This command queries the filter type of the carrier for Adjacent Channel Power measurement.
Refer to
[:SENSe]:ACPower:CARRier[1]:LIST:METHod?.

Related command
This command has the same function as the following command.
[:SENSe]:ACPower:CARRier[1]|2:LIST:METHod?
[:SENSe]:ACPower:CARRier[1]:FILTer:TYPE RECT|NYQuist|RNYQuist
Adjacent Channel Power Filter Type

Function

This command sets the filter type of the carrier for Adjacent Channel Power measurement.

Command

[:SENSe]:ACPower:CARRier[1]:FILTer:TYPE <filter>

Parameter

<filter>  Filter type
RECT  Rectangle filter
NYQuist  Nyquist filter
RNYQuist  Root Nyquist filter (Default)

Example of Use

To set the filter type for ACP measurement to Nyquist.
ACP:CARR:FILT:TYPE NYQ

Related command

This command has the same function as the following command.
[:CALCulate:ACPower:CARRier[1]:FILTer:TYPE

:CALCulate:ACPower:CARRier[1]:FILTer:TYPE RECT|NYQuist|RNYQuist
Adjacent Channel Power Filter Type

Function

This command sets filter type of the carrier for Adjacent Channel Power measurement.
Refer to
[:SENSe]:ACPower:CARRier[1]:FILTer:TYPE.

Related command

This command has the same function as the following command.
[:SENSe]:ACPower:CARRier[1]:FILTer:TYPE
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[:SENSe]:ACPower:CARRier[1]:FILTer:TYPE?
Adjacent Channel Power Filter Type Query

Function
This command queries the filter type of the carrier for Adjacent Channel Power measurement.

Command
[:SENSe]:ACPower:CARRier[1]:FILTer:TYPE <filter>

Response
<filter>

Parameter
<filter>  Filter type
RECT  Rectangle filter
NYQ  Nyquist filter
RNYQ  Root Nyquist filter (Default)

Example of Use
To query the filter type for ACP measurement.
ACP:CARR:FILT:TYPE?
> NYQ

Related command
This command has the same function as the following command.
[:SENSe]:ACPower:CARRier[1]:FILTer:TYPE?

:CALCulate:ACPower:CARRier[1]:FILTer:TYPE?
Adjacent Channel Power Filter Type Query

Function
This command queries filter type of the carrier for Adjacent Channel Power measurement.
Refer to
[:SENSe]:ACPower:CARRier[1]:FILTer:TYPE?.

Related command
This command has the same function as the following command.
[:SENSe]:ACPower:CARRier[1]:FILTer:TYPE?
[:SENSe]:ACPower:FILTer[:RRC][:STATe] OFF|ON|0|1
Adjacent Channel Power Offset Filter Type

Function
This command sets the filter type of the offset channel for Adjacent Channel Power measurement.

Command
[:SENSe]:ACPower:FILTer[:RRC][:STATe] <switch>

Parameter
<switch> Filter type
OFF|0 Rectangle filter
ON|1 Root Nyquist filter

Example of Use
To set the filter type of the offset channel for ACP measurement to Root Nyquist.
ACP:FILT ON

Related command
This command has the same function as the following command.
[:CALCulate:ACPower:FILTer[:RRC][:STATe]]

[:CALCulate:ACPower:FILTer[:RRC][:STATe] OFF|ON|0|1
Adjacent Channel Power Offset Filter Type

Function
This command sets filter type of the offset channel for Adjacent Channel Power measurement.
Refer to [:SENSe]:ACPower:FILTer[:RRC][:STATe].

Related command
This command has the same function as the following command.
[:SENSe]:ACPower:FILTer[:RRC][:STATe]
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[:SENSe]:ACPower:FILTer[:RRC][:STATe]?
Adjacent Channel Power Offset Filter Type Query

Function

This command queries the filter type of the offset channel for Adjacent Channel Power measurement.

Query

[:SENSe]:ACPower:FILTer[:RRC][:STATe]?

Response

<switch>

Parameter

<switch> Filter type
0 Rectangle filter, Nyquist filter
1 Root Nyquist filter

Example of Use

To query the filter type for ACP measurement.
ACP:FILT?
> 1

Related command

This command has the same function as the following command.
:CALCulate:ACPower:FILTer[:RRC][:STATe]?

:CALCulate:ACPower:FILTer[:RRC][:STATe]?
Adjacent Channel Power Offset Filter Type Query

Function

This command queries filter type of the offset channel for Adjacent Channel Power measurement.

Refer to
[:SENSe]:ACPower:FILTer[:RRC][:STATe]?
.

Related command

This command has the same function as the following command.
[:SENSe]:ACPower:FILTer[:RRC][:STATe]?
[:SENSe]:ACPower:OFFSet[1]:FILTer:TYPE RECT|NYQuist|RNYQuist
Adjacent Channel Power Offset Filter Type

Function

This command queries filter type of the offset for Adjacent Channel Power measurement.

Command

[:SENSe]:ACPower:OFFSet[1]:FILTer:TYPE <filter>

Parameter

<filter> Filter type
RECT Rectangle filter
NYQuist Nyquist filter
RNYQuist Root Nyquist filter (Default)

Example of Use

To set filter type for ACP measurement to Nyquist.
ACP:OFFS:FILT:TYPE NYQ

Related command

This command has the same function as the following command.
[:CALCulate:ACPower:OFFSet[1]:FILTer:TYPE

:CALCulate:ACPower:OFFSet[1]:FILTer:TYPE RECT|NYQuist|RNYQuist
Adjacent Channel Power Offset Filter Type

Function

This command sets filter type of the offset for Adjacent Channel Power measurement.
Refer to
[:SENSe]:ACPower:OFFSet[1]:FILTer:TYPE.

Related command

This command has the same function as the following command.
[:SENSe]:ACPower:OFFSet[1]:FILTer:TYPE
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[:SENSe]:ACPower:OFFSet[1]:FILTer:TYPE?
Adjacent Channel Power Offset Filter Type Query

Function
   This command queries filter type of the offset for Adjacent Channel Power measurement.

Query
   [:SENSe]:ACPower:OFFSet[1]:FILTer:TYPE?

Response
   <filter>

Parameter
   <filter>          Filter type
       RECT          Rectangle filter
       NYQ           Nyquist filter
       RNYQ          Root Nyquist filter

Example of Use
   To query filter type for ACP measurement.
   ACP:OFFS:FILT:TYPE?
   > NYQ

Related command
   This command has the same function as the following command.
   :CALCulate:ACPower:OFFSet[1]:FILTer:TYPE?

:CALCulate:ACPower:OFFSet[1]:FILTer:TYPE?
Adjacent Channel Power Offset Filter Type Query

Function
   This command queries filter type of the offset for Adjacent Channel Power measurement.
   Refer to
   [:SENSe]:ACPower:OFFSet[1]:FILTer:TYPE?.

Related command
   This command has the same function as the following command.
   [:SENSe]:ACPower:OFFSet[1]:FILTer:TYPE?
[:SENSe]:ACPower:ADVanced:OFFSet:MODE NORMal|ADVanced
Adjacent Channel Power Offset Mode

Function
This command selects offset mode for Adjacent Channel Power measurement.

Command
[:SENSe]:ACPower:ADVanced:OFFSet:MODE <mode>

Parameter
<mode> Offset mode
NORMal Normal setting
ADVanced Advanced setting
Default NORMal

Details
This function can be set when the following trace is active.
• Adjacent Channel Power

Selecting ADVanced supports addition of the settable Offset, setting of the channel width for each Offset, and selection of the filter selection.

Example of Use
To set the offset mode to Advanced.
ACP:ADV:OFFS:MODE ADV
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[:SENSe]:ACPower:ADVanced:OFFSet:MODE?
Adjacent Channel Power Offset Mode Query

Function
This command queries offset mode for ACP measurement.

Query
[:SENSe]:ACPower:ADVanced:OFFSet:MODE?

Response
<mode>

Parameter

<table>
<thead>
<tr>
<th>&lt;mode&gt;</th>
<th>Offset mode</th>
</tr>
</thead>
<tbody>
<tr>
<td>NORM</td>
<td>Normal setting</td>
</tr>
<tr>
<td>ADV</td>
<td>Advanced setting</td>
</tr>
</tbody>
</table>

Details
This function can be set when the following trace is active.
• Adjacent Channel Power

Example of Use
To query the offset mode
ACP:ADV:OFFS:MODE?
> ADV
[:SENSe]:ACPowers:ADVanced:OFFSet:BANDwidth[:INTegration]  
<bandwidth>,<bandwidth>,<bandwidth>,<bandwidth>,<bandwidth>,<bandwidth>,<bandwidth>

Adjacent Channel Power Offset Channel Bandwidth

Function

This command sets offset channel bandwidth for Adjacent Channel Power measurement.

Command

[:SENSe]:ACPowers:ADVanced:OFFSet:BANDwidth[:INTegration]  
<bandwidth_1>,<bandwidth_2>,<bandwidth_3>,<bandwidth_4>,  
<bandwidth_5>,<bandwidth_6>,<bandwidth_7>,<bandwidth_8>

Parameter

<table>
<thead>
<tr>
<th>Parameter</th>
<th>Description</th>
</tr>
</thead>
<tbody>
<tr>
<td>&lt;bandwidth_n&gt;</td>
<td>Channel bandwidth of Offset_n</td>
</tr>
</tbody>
</table>

- **Range**: 1 Hz to 125 MHz
- **Resolution**: 1 Hz
- **Suffix code**: HZ, KHZ, KZ, MHZ, MZ, GHZ, GZ
  - Hz is used when omitted.
- **Default**: 3.84 MHz

Details

This function can be set when the following trace is active.
- Spectrum

To query the measurement results after executing this command, use the *WAI command to control synchronization.

Example of Use

To set the Offset Channel bandwidth to 3.84 MHz and query the results.

```
ACP:ADV:OFFS:BAND
3.84MHZ,3.84MHZ,3.84MHZ,3.84MHZ,3.84MHZ,3.84MHZ,3.84MHZ,3.84MHZ
3.84MHZ
*WAI
FETC:ACP?
```
[:SENSe]:ACPower:ADVanced:OFFSet:BANDwidth[:INTegration]? 
Adjacent Channel Power Offset Channel Bandwidth Query

Function

This command queries offset channel bandwidth for Adjacent Channel Power measurement.

Query

[:SENSe]:ACPower:ADVanced:OFFSet:BANDwidth[:INTegration]? 

Response

<bandwidth_1>,<bandwidth_2>,<bandwidth_3>,<bandwidth_4>,
<bandwidth_5>,<bandwidth_6>,<bandwidth_7>,<bandwidth_8>

Parameter

<bandwidth_n> Channel bandwidth of Offset_n
Range 1 Hz to 125 MHz
Resolution 1 Hz
Suffix code None. Value is returned in Hz units.

Details

This function can be set when the following trace is active.
• Spectrum

Example of Use

To query offset channel bandwidth for ACP measurement.
ACP:ADV:OFFS:BAND?
>
3840000,3840000,3840000,3840000,3840000,3840000,3840000,
3840000
[:SENSe]:ACPower:ADVanced:OFFSet:LIST:STATe
ON|OFF|1|0,ON|OFF|1|0,ON|OFF|1|0,ON|OFF|1|0,ON|OFF|1|0,ON|OFF|1|0,ON|OFF|1|0

Adjacent Channel Power Offset

Function

This command sets the offset channel for Adjacent Channel Power measurement On/Off.

Command

[:SENSe]:ACPower:ADVanced:OFFSet:LIST:STATe
<switch_1>,<switch_2>,<switch_3>,<switch_4>,<switch_5>,<switch_6>,<switch_7>,<switch_8>

Parameter

<switch_n> Measurement Channel n On/Off
ON|1 Measures offset channel n
OFF|0 Does not measure offset channel n

Default

switch_1 On
switch_2 On
switch_3 Off
switch_4 Off
switch_5 Off
switch_6 Off
switch_7 Off
switch_8 Off

Details

This function can be set when the following trace is active.
• Spectrum

To query the measurement results after executing this command, use the *WAI command to control synchronization.

Example of Use

To set the offset channel and query the results.
ACP:ADV:OFFS:LIST:STAT ON,ON,ON,ON,ON,ON,ON
*WAI
FETC:ACP?
[:SENSe]:ACPower:ADVanced:OFFSet:LIST:STATe?
Adjacent Channel Power Offset Query

Function
This command queries the On/Off status of the offset channel for Adjacent Channel Power measurement.

Query
[:SENSe]:ACPower:ADVanced:OFFSet:LIST:STATe?

Response
<switch_1>,<switch_2>,<switch_3>,<switch_4>,<switch_5>,<switch_6>,<switch_7>,<switch_8>

Parameter
<switch_n> Measurement Channel n On/Off
1 Measures offset channel n
0 Does not measure offset channel n

Details
This function can be set when the following trace is active.
• Spectrum

Example of Use
To query offset channel.
ACP:ADV:OFFS:LIST:STAT?
> 1,1,1,0,0,0,0,0
[:SENSe]:ACPower:ADVanced:OFFSET:LIST[:FREQuency]
<freq>,<freq>,<freq>,<freq>,<freq>,<freq>,<freq>,<freq>

Adjacent Channel Power Offset Frequency

Function

This command sets the offset channel frequency for Adjacent Channel Power measurement.

Command

[:SENSe]:ACPower:ADVanced:OFFSET:LIST[:FREQuency]
<freq_1>,<freq_2>,<freq_3>,<freq_4>,<freq_5>,<freq_6>,<freq_7>,<freq_8>

Parameter

<freq_n>  Offset channel n offset frequency
Range      –125 to 125 MHz
Resolution 1 Hz
Suffix code HZ, KHZ, KZ, MHZ, MZ, GHZ, GZ
Hz is used when omitted.

Default

freq_1      5 MHz
freq_2      10 MHz
freq_3      15 MHz
freq_4      15 MHz
freq_5      15 MHz
freq_6      15 MHz
freq_7      15 MHz
freq_8      15 MHz

Details

This function can be set when the following trace is active.
- Spectrum

To query the measurement results after executing this command, use the *WAI command to control synchronization.

Example of Use

To set offset channel offset frequency and query results.
ACP:ADV:OFFS:LIST
30KHZ,50KHZ,70KHZ,90KHZ,110KHZ,130KHZ,150KHZ,170KHZ
*WAI
FETC:ACP?
[:SENSe]:ACPower:ADVanced:OFFSet:LIST[:FREQuency]?
Adjacent Channel Power Offset Frequency Query

Function
This command queries the offset frequency of the offset channel for
Adjacent Channel Power measurement.

Query
[:SENSe]:ACPower:ADVanced:OFFSet:LIST[:FREQuency]?

Response
<freq_1>,<freq_2>,<freq_3>,<freq_4>,<freq_5>,<freq_6>,<freq_7>,<freq_8>

Parameter
<freq_n> Offset channel n offset frequency
Range -125 to 125 MHz
Resolution 1 Hz
Suffix code None. Value is returned in Hz units.

Details
This function can be set when the following trace is active.
• Spectrum

Example of Use
To query offset channel offset frequency.
ACP:ADV:OFFS:LIST?
> 30000,50000,50000,50000,50000,50000,50000,50000
[:SENSe]:ACPower:ADVanced:OFFSet:FILTer:TYPE
RECT|NYQuist|RNYQuist,RECT|NYQuist|RNYQuist,RECT|NYQuist|RNYQuist,RECT|NYQuist|RNYQuist,RECT|NYQuist|RNYQuist,RECT|NYQuist|RNYQuist,RECT|NYQuist|RNYQuist,RECT|NYQuist|RNYQuist,RECT|NYQuist|RNYQuist
Adjacent Channel Power Offset Filter Type

Function
This command sets offset filter for Adjacent Channel Power measurement.

Command
[:SENSe]:ACPower:ADVanced:OFFSet:FILTer:TYPE
<mode_1>,<mode_2>,<mode_3>,<mode_4>,<mode_5>,<mode_6>,<mode_7>,<mode_8>

Parameter
<mode_n> Filter type of Offset_n
RECT Rectangular filter
NYQuist Nyquist filter
RNYQuist Root Nyquist filter (Default)

Details
This function can be set when the following trace is active.
• Spectrum

To query the measurement results after executing this command, use the *WAI command to control synchronization.

Example of Use
To set ACP measurement offset channel filter type to Nyquist and query result.
ACP:ADV:OFFS:FILT:TYPE NYQ, NYQ, NYQ, NYQ, NYQ, NYQ, NYQ, NYQ
*WAI
FETC:ACP?
[:SENSe]:ACPower:ADVanced:OFFSet:FILTer:TYPE?

Adjacent Channel Power Offset Filter Type Query

Function

This command queries the offset filter for ACP measurement.

Query

[:SENSe]:ACPower:ADVanced:OFFSet:FILTer:TYPE?

Response

<mode_1>,<mode_2>,<mode_3>,<mode_4>,<mode_5>,<mode_6>,<mode_7>,<mode_8>

Parameter

<mode>  
RECT  Rectangular filter 
NYQ  Nyquist filter 
RNYQ  Root Nyquist filter

Details

This function can be set when the following trace is active. 
• Spectrum

Example of Use

To query ACP measurement offset channel filter type. 
ACP:ADV:OFFS:FILT:TYPE? 
> NYQ, NYQ, NYQ, NYQ, NYQ, NYQ, NYQ, NYQ, NYQ
[:SENSe]:ACPower:ADVanced:FILTer[:RRC]:ALPHa <real>

Adjacent Channel Power Offset Rolloff Ratio

Function

This command sets the roll-off rate of the Adjacent Channel Power measurement offset channel filter.

Command

[:SENSe]:ACPower:ADVanced:FILTer[:RRC]:ALPHa <real_1>,<real_2>,<real_3>,<real_4>,<real_5>,<real_6>,<real_7>,<real_8>

Parameter

<real_n>  Offset_n filter roll-off rate
  Range     0.01 to 1.00
  Resolution 0.01
  Suffix code None

Details

This function can be set when the following trace is active.
  • Spectrum

This function is enabled when the ACP measurement offset channel filter type (ACP Offset Filter Type) is one of the following:
  • Nyquist
  • Root Nyquist

To query the measurement results after executing this command, use the *WAI command to control synchronization.

Example of Use

To set the roll-off rate of the ACP measurement offset channel filter to 0.22 and query the result.

ACP:ADV:FILT:ALPH 0.22,0.22,0.22,0.22,0.22,0.22,0.22,0.22
*WAI
FETC:ACP?
[:SENSe]:ACPower:ADVanced:FILTer[:RRC]:ALPHa?

Adjacent Channel Power Offset Rolloff Ratio Query

Function

This command queries the roll-off rate of the Adjacent Channel Power measurement offset channel filter.

Command

[:SENSe]:ACPower:ADVanced:FILTer[:RRC]:ALPHa?

Response

<real_1>,<real_2>,<real_3>,<real_4>,<real_5>,<real_6>,<real_7>,<real_8>

Parameter

<real_n> Offset_n filter roll-off rate
  Range 0.01 to 1.00
  Resolution 0.01
  Suffix code None

Details

This function can be set when the following trace is active.
  • Spectrum

This function is enabled when the ACP measurement offset channel filter type (ACP Offset Filter Type) is one of the following:
  • Nyquist
  • Root Nyquist

Example of Use

To query ACP measurement offset filter roll-off rate.

ACP:ADV:FILT:ALPH?
> 0.22,0.22,0.22,0.22,0.22,0.22,0.22,0.22
:DISPlay:ACP:RESult:TYPE CARRier|OFFSet|ALL
Adjacent Channel Power Result Type

Function

This command switches the result display type for ACP measurement.

Command

:DISPlay:ACP:RESult:TYPE <type>

Parameter

- **<type>**
  - **CARRier**
    - Sets the result display for ACP measurement to Carrier Power.
  - **OFFSet**
    - Sets the result display for ACP measurement to Offset Channel Power.
  - **ALL**
    - Sets to ALL

Example of Use

To set the result display for ACP measurement to Carrier Power.

DISP:ACP:RES:TYPE CARR
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:DISPlay:ACP:RES:TYPE?
Adjacent Channel Power Result Type Query

Function
This command queries the type of the result display for Adjacent Channel Power measurement.

Command
:DISPlay:ACP:RES:TYPE?

Response
<type>

Parameter
<type>  Result display type
CARR  Sets the result display for ACP measurement
       Carrier Power.
OFFS  Sets the result display for ACP measurement to
       Offset Ch Power.
ALL  ALL

Example of Use
To query the type of the result display for ACP measurement.
DISP:ACP:RES:TYPE?
> CARR
[:SENSe]:ACP:CarriER[1]:LisT:FiltE:Alpha <real>

Adjacent Channel Power Rolloff Ratio

Function

This command sets the rolloff ratio of the filter of the reference channel for Adjacent Channel Power measurement.

Command

[:SENSe]:ACP:CarriER[1]:LisT:FiltE:Alpha <real>

Parameter

<real> Filter rolloff ratio
Range 0.01 to 1.00
Resolution 0.01
Suffix code None
Default 0.22

Details

This function can be set when the target ACP filter type is set to either of the following:
- Nyquist
- Root Nyquist

Cannot be set when ACP Reference is set to the following:
- Span Total

Example of Use

To set the filter rolloff ratio to 0.22.
ACP:Carri:List:Filt:Alph 0.22

Related command

This command has the same function as the following command.
[:CALCulate:ACP:CarriER[1]:LisT:FiltE:Alpha]
:CALCulate:ACPwr:CARRier[1]:LIST:FILTer:ALPHa <real>

Adjacent Channel Power Rolloff Ratio

Function

This command sets the rolloff ratio of the filter of the reference channel for Adjacent Channel Power measurement.

Refer to [:SENSe]:ACPwr:CARRier[1]:LIST:FILTer:ALPHa.

Related command

This command has the same function as the following command.

[:SENSe]:ACPwr:CARRier[1]:LIST:FILTer:ALPHa
[:SENSe]:ACPwr:CARRier[1]:LIST:FILT:ALPHa?

Adjacent Channel Power Rolloff Ratio Query

Function

This command sets the rolloff ratio of the filter of the reference channel for Adjacent Channel Power measurement.

Query

[:SENSe]:ACPwr:CARRier[1]:LIST:FILT:ALPHa?

Response

<real>

Parameter

<real>  Filter rolloff ratio

Range  0.01 to 1.00
Resolution  0.01
Suffix code  None

Details

This function is enabled when the filter type of the reference channel for ACP measurement (ACP Reference Filter Type) is set to either of the following:
- Nyquist
- Root Nyquist

The setting is not available when ACP Reference is set to the following:
- Span Total

Example of Use

To query the rolloff ratio of the filter for ACP measurement.
ACP:CARR:LIST:FILT:ALPH?
> 0.22

Related command

This command has the same function as the following command.
:CALCulate:ACPwr:CARRier[1]:LIST:FILT:ALPHa?
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:CALCulate:ACPower:CARRier[1]:LIST:FILTer:ALPHA?
Adjacent Channel Power Rolloff Ratio Query

Function

This command sets the rolloff ratio of the filter of the reference channel for Adjacent Channel Power measurement.

Refer to

[:SENSe]:ACPower:CARRier[1]:LIST:FILTer:ALPHA?.

Related command

This command has the same function as the following command.

[:SENSe]:ACPower:CARRier[1]:LIST:FILTer:ALPHA?
[:SENSe]:ACPower:FILTer[:RRC]:ALPHa <real>
Adjacent Channel Power Offset Rolloff Ratio

Function
This command sets the rolloff ratio of the filter of the offset channel for Adjacent Channel Power measurement.

Command
[:SENSe]:ACPower:FILTer[:RRC]:ALPHa <real>

Parameter
<real> Filter rolloff ratio
Range 0.01 to 1.00
Resolution 0.01
Suffix code None

Details
This function is enabled when the filter type of the offset channel for ACP measurement(ACP Offset Filter Type) is set to either of the following:
• Nyquist
• Root Nyquist

Example of Use
To set the rolloff ratio of the filter for ACP measurement to 0.22.
ACP:FILT:ALPH 0.22

Related command
This command has the same function as the following command.
[:CALCulate]:ACPower:FILTer[:RRC]:ALPHa

[:CALCulate]:ACPower:FILTer[:RRC]:ALPHa <real>
Adjacent Channel Power Offset Rolloff Ratio

Function
This command sets the rolloff ratio of the filter of the offset channel for Adjacent Channel Power measurement.
Refer to
[:SENSe]:ACPower:FILTer[:RRC]:ALPHa.

Related command
This command has the same function as the following command.
[:SENSe]:ACPower:FILTer[:RRC]:ALPHa
[:SENSe]:ACPower:FILTer[:RRC]:ALPHa?
Adjacent Channel Power Offset Rolloff Ratio Query

Function
This command sets the rolloff ratio of the filter of the offset channel for Adjacent Channel Power measurement.

Command
[:SENSe]:ACPower:FILTer[:RRC]:ALPHa?

Response
<real>

Parameter
<real>
Filter rolloff ratio

- Range 0.01 to 1.00
- Resolution 0.01
- Suffix code None

Details
This function is enabled when the filter type of the offset channel for ACP measurement (ACP Offset Filter Type) is set to either of the following:
- Nyquist
- Root Nyquist

Example of Use
To query the rolloff ratio of the filter for ACP measurement.
ACP:FILT:ALPH?
> 0.22

Related command
This command has the same function as the following command.
:CALCulate:ACPower:FILTer[:RRC]:ALPHa?
:CALCulate:ACP\textunderscore Power\textunderscore Filter:\textunderscore RRC\textunderscore Alpha?

Adjacent Channel Power Offset Rolloff Ratio Query

Function

This command queries the rolloff ratio of the filter of the offset channel for Adjacent Channel Power measurement.

Refer to 
[:SENSe]:ACP\textunderscore Power\textunderscore Filter:\textunderscore RRC\textunderscore Alpha?.

Related command

This command has the same function as the following command. 
[:SENSe]:ACP\textunderscore Power\textunderscore Filter:\textunderscore RRC\textunderscore Alpha?

:CONFigure:ACP

Adjacent Channel Power Configure

Function

This command sets the Adjacent Channel Power measurement to On.

Command

:CONFigure:ACP

Details

No measurement is performed.

Example of Use

To set ACP measurement to On.

CONF:ACP
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:INITiate:ACP
Adjacent Channel Power Initiate

Function
This command starts Adjacent Channel Power measurement.

Command
:INITiate:ACP

Details
ACP measurement is set to On and the measurement starts, when this function is executed.

To read out the measurement results after executing this command, perform the synchronization control using the “*WAI” command.

Example of Use
To start ACP measurement.
INIT:ACP
:**FETCh:ACP[n]?
Adjacent Channel Power Read Fetch

Function

This command outputs the measurement result for Adjacent Channel Power measurement.

Query

:**FETCh:ACP[n]?

Response

When the result mode is “A”:
When Offset Setup Mode is Normal
When ACP measurement (ACP Result Type is OFFSET)
Two values of ref_carrier_a is output when ACP Reference is BSIDes.
<ref_carrier_a>,<lower_offset_1_rel>,<lower_offset_1_abs>,
<upper_offset_1_rel>,<upper_offset_1_abs>,
<lower_offset_2_rel>,<lower_offset_2_abs>,
<upper_offset_2_rel>,<upper_offset_2_abs>,
<lower_offset_3_rel>,<lower_offset_3_abs>,
<upper_offset_3_rel>,<upper_offset_3_abs>
(in n=1 or when omitted)

In ACP measurement (when ACP Result Type is CARRier)
<integration_abs>,<total_carrier_a>,<power_1>,
<power_2>,<power_3>,<power_4>,<power_5>,<power_6>,
<power_7>,<power_8>,<power_9>,<power_10>,
<power_11>,<power_12>
(n=1 or when omitted)

In ACP measurement (when ACP Result Type is ALL)
<integration_abs>,<total_carrier_a>,
<power_1>,<power_2>,<power_3>,<power_4>,
<power_5>,<power_6>,<power_7>,<power_8>,
<power_9>,<power_10>,<power_11>,<power_12>,
<ref_carrier_a>,
<lower_offset_1_rel>,<lower_offset_1_abs>,
<upper_offset_1_rel>,<upper_offset_1_abs>,
<lower_offset_2_rel>,<lower_offset_2_abs>,
<upper_offset_2_rel>,<upper_offset_2_abs>,
<lower_offset_3_rel>,<lower_offset_3_abs>,
<upper_offset_3_rel>,<upper_offset_3_abs>
(n=1 or when omitted)
When Offset Setup Mode is Advanced
In ACP measurement (when ACP Result Type is OFFSET)
Two values of ref_carrier_a are output when ACP Reference is BSIDes.
<ref_carrier_a>,<ref_carrier_a>,
<lower_offset_1_rel>,<lower_offset_1_abs>,
<upper_offset_1_rel>,<upper_offset_1_abs>,
<lower_offset_2_rel>,<lower_offset_2_abs>,
<upper_offset_2_rel>,<upper_offset_2_abs>,
<lower_offset_3_rel>,<lower_offset_3_abs>,
<upper_offset_3_rel>,<upper_offset_3_abs>,
<lower_offset_4_rel>,<lower_offset_4_abs>,
<upper_offset_4_rel>,<upper_offset_4_abs>,
<lower_offset_5_rel>,<lower_offset_5_abs>,
<upper_offset_5_rel>,<upper_offset_5_abs>,
<lower_offset_6_rel>,<lower_offset_6_abs>,
<upper_offset_6_rel>,<upper_offset_6_abs>,
<lower_offset_7_rel>,<lower_offset_7_abs>,
<upper_offset_7_rel>,<upper_offset_7_abs>,
<lower_offset_8_rel>,<lower_offset_8_abs>,
<upper_offset_8_rel>,<upper_offset_8_abs>
(n=1 or when omitted)

In ACP measurement (when ACP Result Type is CARRIER)
<integration_abs>,<total_carrier_a>,
<power_1>,<power_2>,<power_3>,<power_4>,
<power_5>,<power_6>,<power_7>,<power_8>,
<power_9>,<power_10>,<power_11>,<power_12>
(n=1 or when omitted)
In ACP measurement (when ACP Result Type is ALL)
Two values of ref_carrier_a are output when ACP Reference is BSIDes.

\[
<\text{integration\_abs}>, <\text{total\_carrier\_a}>,
<\text{power\_1}>, <\text{power\_2}>, <\text{power\_3}>, <\text{power\_4}>,
<\text{power\_5}>, <\text{power\_6}>, <\text{power\_7}>, <\text{power\_8}>,
<\text{power\_9}>, <\text{power\_10}>, <\text{power\_11}>, <\text{power\_12}>,
<\text{ref\_carrier\_a}> (<\text{ref\_carrier\_a}>) ,
<\text{lower\_offset\_1\_rel}>, <\text{lower\_offset\_1\_abs}>,
<\text{upper\_offset\_1\_rel}>, <\text{upper\_offset\_1\_abs}>,
<\text{lower\_offset\_2\_rel}>, <\text{lower\_offset\_2\_abs}>,
<\text{upper\_offset\_2\_rel}>, <\text{upper\_offset\_2\_abs}>,
<\text{lower\_offset\_3\_rel}>, <\text{lower\_offset\_3\_abs}>,
<\text{upper\_offset\_3\_rel}>, <\text{upper\_offset\_3\_abs}>,
<\text{lower\_offset\_4\_rel}>, <\text{lower\_offset\_4\_abs}>,
<\text{upper\_offset\_4\_rel}>, <\text{upper\_offset\_4\_abs}>,
<\text{lower\_offset\_5\_rel}>, <\text{lower\_offset\_5\_abs}>,
<\text{upper\_offset\_5\_rel}>, <\text{upper\_offset\_5\_abs}>,
<\text{lower\_offset\_6\_rel}>, <\text{lower\_offset\_6\_abs}>,
<\text{upper\_offset\_6\_rel}>, <\text{upper\_offset\_6\_abs}>,
<\text{lower\_offset\_7\_rel}>, <\text{lower\_offset\_7\_abs}>,
<\text{upper\_offset\_7\_rel}>, <\text{upper\_offset\_7\_abs}>,
<\text{lower\_offset\_8\_rel}>, <\text{lower\_offset\_8\_abs}>,
<\text{upper\_offset\_8\_rel}>, <\text{upper\_offset\_8\_abs}>
\]

(n=1 or when omitted)

When the result mode is “B”.

When Offset Setup Mode is Normal
When the Carrier Number is 1 and when only the Offset-1 is On.
\[
<\text{ref\_carrier\_b}>, <\text{lower\_offset\_1\_rel}>,
<\text{upper\_offset\_1\_rel}>
\]

Other than the above
\[
0.0, <\text{total\_carrier\_b}>, 0.0, <\text{ref\_carrier\_b}>,
<\text{lower\_offset\_1\_rel}>, <\text{lower\_offset\_1\_abs}>,
<\text{upper\_offset\_1\_rel}>, <\text{upper\_offset\_1\_abs}>,
<\text{lower\_offset\_2\_rel}>, <\text{lower\_offset\_2\_abs}>,
<\text{upper\_offset\_2\_rel}>, <\text{upper\_offset\_2\_abs}>,
<\text{lower\_offset\_3\_rel}>, <\text{lower\_offset\_3\_abs}>,
<\text{upper\_offset\_3\_rel}>, <\text{upper\_offset\_3\_abs}>
\]

(n = 1 or when omitted, and when ACP Reference is other than Both Sides of Carriers)
\[
0.0, <\text{total\_carrier\_b}>,
<\text{ref\_carrier\_lower}>, <\text{ref\_carrier\_upper}>,
<\text{lower\_offset\_1\_rel}>, <\text{lower\_offset\_1\_abs}>,
\]
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<n = 1 or when omitted, and when ACP Reference is Both Sides of
Carriers>

<channel_1_rel>,<channel_1_abs>,
<channel_2_rel>,<channel_2_abs>,
......
<channel_12_rel>,<channel_12_abs>,
<lower_offset_1_rel>,<lower_offset_1_abs>,
<upper_offset_1_rel>,<upper_offset_1_abs>,
<lower_offset_2_rel>,<lower_offset_2_abs>,
<upper_offset_2_rel>,<upper_offset_2_abs>,
<lower_offset_3_rel>,<lower_offset_3_abs>,
<upper_offset_3_rel>,<upper_offset_3_abs>,
<lower_offset_4_rel>,<lower_offset_4_abs>,
<upper_offset_4_rel>,<upper_offset_4_abs>,
<lower_offset_5_rel>,<lower_offset_5_abs>,
<upper_offset_5_rel>,<upper_offset_5_abs>,
<lower_offset_6_rel>,<lower_offset_6_abs>,
<upper_offset_6_rel>,<upper_offset_6_abs>,
<lower_offset_7_rel>,<lower_offset_7_abs>,
<upper_offset_7_rel>,<upper_offset_7_abs>,
<lower_offset_8_rel>,<lower_offset_8_abs>,
<upper_offset_8_rel>,<upper_offset_8_abs>

<ref_carrier_b>,<lower_offset_1_rel>,
<upper_offset_1_rel>

Other than the above
0.0,<total_carrier_b>,0.0,<ref_carrier_b>,
<lower_offset_1_rel>,<lower_offset_1_abs>,
<upper_offset_1_rel>,<upper_offset_1_abs>,
<lower_offset_2_rel>,<lower_offset_2_abs>,
<upper_offset_2_rel>,<upper_offset_2_abs>,
<lower_offset_3_rel>,<lower_offset_3_abs>,
<upper_offset_3_rel>,<upper_offset_3_abs>,
<lower_offset_4_rel>,<lower_offset_4_abs>,
<upper_offset_4_rel>,<upper_offset_4_abs>,
<lower_offset_5_rel>,<lower_offset_5_abs>,
<upper_offset_5_rel>,<upper_offset_5_abs>,
<lower_offset_6_rel>,<lower_offset_6_abs>,
<upper_offset_6_rel>,<upper_offset_6_abs>,
<lower_offset_7_rel>,<lower_offset_7_abs>,
<upper_offset_7_rel>,<upper_offset_7_abs>,
<lower_offset_8_rel>,<lower_offset_8_abs>,
<upper_offset_8_rel>,<upper_offset_8_abs>

(n=1 or when omitted, and when ACP Reference is not Both Sides
of Carriers)
0.0,<total_carrier_b>,
<ref_carrier_lower>,<ref_carrier_upper>,
<lower_offset_1_rel>,<lower_offset_1_abs>,
<upper_offset_1_rel>,<upper_offset_1_abs>,
<lower_offset_2_rel>,<lower_offset_2_abs>,
<upper_offset_2_rel>,<upper_offset_2_abs>,
<lower_offset_3_rel>,<lower_offset_3_abs>,
<upper_offset_3_rel>,<upper_offset_3_abs>,
<lower_offset_4_rel>,<lower_offset_4_abs>,
<upper_offset_4_rel>,<upper_offset_4_abs>,
<lower_offset_5_rel>,<lower_offset_5_abs>,
<upper_offset_5_rel>,<upper_offset_5_abs>,
<lower_offset_6_rel>,<lower_offset_6_abs>,
<upper_offset_6_rel>,<upper_offset_6_abs>,
<lower_offset_7_rel>,<lower_offset_7_abs>,
<upper_offset_7_rel>,<upper_offset_7_abs>,
<lower_offset_8_rel>,<lower_offset_8_abs>,
<upper_offset_8_rel>,<upper_offset_8_abs>
(n=1 or when omitted, and when ACP Reference is Both Sides of Carriers)

<channel_1_rel>,<channel_1_abs>,
<channel_2_rel>,<channel_2_abs>,
......
<channel_12_rel>,<channel_12_abs>,
<lower_offset_1_rel>,<lower_offset_1_abs>,
<upper_offset_1_rel>,<upper_offset_1_abs>,
<lower_offset_2_rel>,<lower_offset_2_abs>,
<upper_offset_2_rel>,<upper_offset_2_abs>,
<lower_offset_3_rel>,<lower_offset_3_abs>,
<upper_offset_3_rel>,<upper_offset_3_abs>,
<lower_offset_4_rel>,<lower_offset_4_abs>,
<upper_offset_4_rel>,<upper_offset_4_abs>,
<lower_offset_5_rel>,<lower_offset_5_abs>,
<upper_offset_5_rel>,<upper_offset_5_abs>,
<lower_offset_6_rel>,<lower_offset_6_abs>,
<upper_offset_6_rel>,<upper_offset_6_abs>,
<lower_offset_7_rel>,<lower_offset_7_abs>,
<upper_offset_7_rel>,<upper_offset_7_abs>,
<lower_offset_8_rel>,<lower_offset_8_abs>,
<upper_offset_8_rel>,<upper_offset_8_abs>
(n=2)
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Parameter

- `<lower_offset_n_rel>` Relative power of the lower Offset-n
- `<upper_offset_n_rel>` Relative power of the upper Offset-n
  No suffix code, dB units, 0.01 dB resolution
  -999.0 is returned when an error occurs/no measurement is performed.
- `<ref_carrier_b>` Power of the reference carrier
- `<ref_carrier_lower>` Power of the carrier on the left
- `<ref_carrier_upper>` Power of the carrier on the right
- `<total_carrier_b>` Total power of all the carriers
- `<channel_n_rel>` Relative power of the carrier “n” to the carrier “m”.
  However, “m” is a value rounded out from Carrier Number ÷ 2.
- `<lower_offset_n_abs>` Absolute power of the lower Offset-n
- `<upper_offset_n_abs>` Absolute power of the upper Offset-n
  No suffix code, dBm unit, 0.01 dB resolution
  -999.0 is returned when an error occurs/no measurement is performed.
- `<integration_abs>` Absolute value of the integral power on the whole screen
- `<ref_carrier_a>` Power of the reference carrier
- `<total_carrier_a>` Total power of all the carriers
- `<power_n>` Absolute value of the power of carrier – n
  Without a suffix code, Log Scale Unit
  (Note: dBm units for V, W units for W)
  -999.0 is returned when an error has occurred or no measurement is performed.

Details

This function outputs the measurement result of the ACP measurement last performed. It is possible to output the measurement result in a state that the measurement has already been done, and in a different style.
You can use READ command if you perform a remeasurement along with starting a sweep again.
The return values of this function change according to the result mode.
(cf :SYSTem:RESult:MODE)

Example of Use

To query the measurement result of ACP measurement.
FETC:ACP?
>
0.0,-72.130,0.0,-72.130,-1.270,-73.400,-0.570,-72.700,-0.780,-72.910,-1.030,-73.160,-999.0,-999.0,-999.0,-999.0
:READ:ACP[n]?
Adjacent Channel Power Read

Function

This command performs the Adjacent Channel Power measurement and outputs the measurement result. It achieves the same result as when commands are sent in the order of

:INITiate:ACP
:*WAI
:FETCH:ACP[n]?

:MEASure:ACP[n]?
Adjacent Channel Power Measure

Function

This command performs the measurement of Adjacent Channel Power measurement and outputs the measurement result. It achieves the same result as when commands are sent in the order of

:CONFigure:ACP
:INITiate:ACP
:*WAI
:FETCH:ACP[n]?

:CALCulate:ACPower:MARKer:AOFF
All Marker Off

Function

This command sets all the markers to Off. Refer to :

:CALCulate:MARKer:AOFF.

Related command

This command has the same function as the following commands.

:CALCulate:MARKer:AOFF
:CALCulate:ACPower:MARKer:AOFF
:CALCulate:BPOWer|:TXPower:MARKer:AOFF
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:CALCulate:ACPower:MARKer[1]2|3|4|5|6|7|8|9|10:MAXimum

Peak Search

Function

This command searches for the maximum level point of the active trace and moves the marker point.

Refer to

Related command

This command has the same function as the following commands.
:CALCulate:MARKer[1]2|3|4|5|6|7|8|9|10:MAXimum
:CALCulate:CHPower:MARKer[1]2|3|4|5|6|7|8|9|10:MAXimum
:CALCulate:OBWidth:MARKer[1]2|3|4|5|6|7|8|9|10:MAXimum
:CALCulate:BPOWer|:TXPower:MARKer[1]2|3|4|5|6|7|8|9|10:MAXimum


Next Peak Search

Function

This command searches for the features of the active trace and moves the marker point to a peak point whose level is smaller than the current marker level.

Refer to
:CALCulate:MARKer[1]2|3|4|5|6|7|8|9|10:MAXimum:NEXT.

Related command

This command has the same function as the following command.
:CALCulate:MARKer[1]2|3|4|5|6|7|8|9|10:MAXimum:NEXT

Power Peak Search

Function

This command moves the active marker to the position with peak total power in the active marker zone in the measurement band.

Refer to

:CALCulate:MARKer[1]|2|3|4|5|6|7|8|9|10:MAXimum:POWer

Related command

This command has the same function as the following command.

:CALCulate:CHPower:MARKer[1]|2|3|4|5|6|7|8|9|10:MAXimum:POWer
:CALCulate:SPURious:MARKer[1]|2|3|4|5|6|7|8|9|10:MAXimum:POWer


Next Power Peak Search

Function

This command searches for the next largest peak power in the zone width compared to the total power of the zone with the active marker in the measurement band and moves the active marker.

Refer to

:CALCulate:MARKer[1]|2|3|4|5|6|7|8|9|10:MAXimum:POWer:NEXT

Related command

This command has the same function as the following command.

:CALCulate:MARKer[1]|2|3|4|5|6|7|8|9|10:MAXimum:POWer:NEXT
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:CALCulate:ACPower:MARKer[1]|2|3|4|5|6|7|8|9|10:MINimum

Minimum Search

Function

This command searches for the minimum level point of the active trace and moves the marker point to that point.

Refer to

:CALCulate:MARKer[1]|2|3|4|5|6|7|8|9|10:MINimum

Related Command

This command has the same function as the following command.

:CALCulate:MARKer[1]|2|3|4|5|6|7|8|9|10:MINimum

:CALCulate:CHPower:MARKer[1]|2|3|4|5|6|7|8|9|10:MINimum

:CALCulate:OBWidth:MARKer[1]|2|3|4|5|6|7|8|9|10:MINimum

:CALCulate:BPOWer:TXPower:MARKer[1]|2|3|4|5|6|7|8|9|10:MINimum


Next Minimum Search

Function

This command searches for the next dip of the active trace and moves the marker point to that point.

Refer to

:CALCulate:MARKer[1]|2|3|4|5|6|7|8|9|10:MINimum:NEXT

Related Command

This command has the same function as the following command.

:CALCulate:MARKer[1]|2|3|4|5|6|7|8|9|10:MINimum:NEXT
:CALCulate:ACPower:MARKer[1]|2|3|4|5|6|7|8|9|10:MODE
NORMal|POSition|DELTa|FIXed|OFF

Marker Mode

Function

This command sets the marker mode.
Refer to
:CALCulate:MARKer[1]|2|3|4|5|6|7|8|9|10:MODE.

Related command

This command has the same function as the following commands.
:CALCulate:MARKer[1]|2|3|4|5|6|7|8|9|10:MODE
:CALCulate:CHPower:MARKer[1]|2|3|4|5|6|7|8|9|10:MODE
:CALCulate:OBWidth:MARKer[1]|2|3|4|5|6|7|8|9|10:MODE
:CALCulate:BPOWer|:TXPower:MARKer[1]|2|3|4|5|6|7|8|9|10:MODE

:CALCulate:ACPower:MARKer[1]|2|3|4|5|6|7|8|9|10:MODE?

Marker Mode Query

Function

This command queries the marker mode.
Refer to
:CALCulate:MARKer[1]|2|3|4|5|6|7|8|9|10:MODE?.

Related command

This command has the same function as the following commands.
:CALCulate:MARKer[1]|2|3|4|5|6|7|8|9|10:MODE?
:CALCulate:CHPower:MARKer[1]|2|3|4|5|6|7|8|9|10:MODE?
:CALCulate:OBWidth:MARKer[1]|2|3|4|5|6|7|8|9|10:MODE?
:CALCulate:BPOWer|:TXPower:MARKer[1]|2|3|4|5|6|7|8|9|10:MODE?
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:CALCulate:ACPower:MARKer[1]|2|3|4|5|6|7|8|9|10:X <freq>|<time>
Zone Marker Frequency (Time)

Function

This command moves the center of the zone marker to the specified frequency or time.
Refer to
:CALCulate:MARKer[1]|2|3|4|5|6|7|8|9|10:X.

Related command

This command has the same function as the following commands.
:CALCulate:MARKer[1]|2|3|4|5|6|7|8|9|10:X

:CALCulate:ACPower:MARKer[1]|2|3|4|5|6|7|8|9|10:X?
Zone Marker Frequency (Time) Query

Function

This command queries the center of the zone marker.
Refer to
:CALCulate:MARKer[1]|2|3|4|5|6|7|8|9|10:X?.

Related command

This command has the same function as the following commands.
:CALCulate:MARKer[1]|2|3|4|5|6|7|8|9|10:X?
:CALCulate:CHPower:MARKer[1]|2|3|4|5|6|7|8|9|10:X?
:CALCulate:OBWidth:MARKer[1]|2|3|4|5|6|7|8|9|10:X?
:CALCulate:BPOWer|:TXPower:MARKer[1]|2|3|4|5|6|7|8|9|10:X?

Zone Marker Position

Function

This command moves the center of the zone marker to the specified position.
Refer to

Related command

This command has the same function as the following commands.
:CALCulate:MARKer[1]|2|3|4|5|6|7|8|9|10:X:POSition


Zone Marker Position Query

Function

This command queries the center position of the zone marker.
Refer to
:CALCulate:MARKer[1]|2|3|4|5|6|7|8|9|10:X:POSition?.

Related command

This command has the same function as the following commands.
:CALCulate:MARKer[1]|2|3|4|5|6|7|8|9|10:X:POSition?
:CALCulate:OBWidth:MARKer[1]|2|3|4|5|6|7|8|9|10:X:POSition?
:CALCulate:BFOWer|TXPower:MARKer[1]|2|3|4|5|6|7|8|9|10:X:POSition?
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:CALCulate:ACPower:MARKer[1]|2|3|4|5|6|7|8|9|10:Y?

Marker Level Query

Function

This command queries the level at the marker point.
Refer to
:CALCulate:MARKer[1]|2|3|4|5|6|7|8|9|10[:PEAK]:Y?.

Related command

This command has the same function as the following commands.
:CALCulate:MARKer[1]|2|3|4|5|6|7|8|9|10[:PEAK]:Y?
:CALCulate:CHPower:MARKer[1]|2|3|4|5|6|7|8|9|10:Y?
:CALCulate:OBWidth:MARKer[1]|2|3|4|5|6|7|8|9|10:Y?
:CALCulate:SPURious:MARKer[1]|2|3|4|5|6|7|8|9|10:Y?

:DISPlay:ACPower:ANNotation:TITle:DATA <string>

Title Entry

Function

This command registers the title character string.
Refer to
:DISPlay:ANNotation:TITle:DATA.

Related command

This command has the same function as the following commands.
:DISPlay:ANNotation:TITle:DATA
:DISPlay:CHPower:ANNotation:TITle:DATA
:DISPlay:OBWidth:ANNotation:TITle:DATA
:DISPlay:SEMask:ANNotation:TITle:DATA
:DISPlay:BPOWer|:TXPower:ANNotation:TITle:DATA
:DISPlay:ACPower:ANNotation:TITle:DATA?

Title Entry Query

Function

This command queries the title character string.
Refer to
:DISPlay:ANNotation:TITle:DATA?.

Related command

This command has the same function as the following commands.
:DISPlay:ANNotation:TITle:DATA?
:DISPlay:CHPower:ANNotation:TITle:DATA?
:DISPlay:OBWidth:ANNotation:TITle:DATA?
:DISPlay:SEMask:ANNotation:TITle:DATA?
:DISPlay:BPOWer|:TXPower:ANNotation:TITle:DATA?

:DISPlay:ACPower:VIEW[1]:WINDow[1]:TRACe:Y[:SCALe]:PDIVision<br>

Log Scale Range

Function

This command sets the Y-axis scale magnification when Scale Mode is set to Log. Refer to
:DISPlay:WINDow[1]:TRACe:Y[:SCALe]:[LOGarithmic]:PDIVision.

Related command

This command has the same function as the following commands.
:DISPlay:WINDow[1]:TRACe:Y[:SCALe]:[LOGarithmic]:PDIVision
:DISPlay:CHPower:VIEW[1]:WINDow[1]:TRACe:Y[:SCALe]:PDIVision
:DISPlay:OBWidth:VIEW[1]:WINDow[1]:TRACe:Y[:SCALe]:PDIVision
:DISPlay:SEMask:VIEW[1]:WINDow[1]:TRACe:Y[:SCALe]:PDIVision
:DISPlay:BPOWer|:TXPower:VIEW[1]:WINDow[1]:TRACe:Y[:SCALe]:PDIVision
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:DISPlay:ACPower:VIEW[1]:WINDow[1]:TRACe:Y[:SCALe]:PDIVision?

Log Scale Range Query

Function

This command queries the Y-axis scale magnification when Scale Mode is set to Log. Refer to
:DISPlay:WINDow[1]:TRACe:Y[:SCALe]:[LOGarithmic]:PDIVision?.

Related command

This command has the same function as the following commands.
:DISPlay:WINDow[1]:TRACe:Y[:SCALe]:[LOGarithmic]:PDIVision?
:DISPlay:ACPower:VIEW[1]:WINDow[1]:TRACe:Y[:SCALe]:PDIVision?
:DISPlay:CHPower:VIEW[1]:WINDow[1]:TRACe:Y[:SCALe]:PDIVision?
:DISPlay:OBWidth:VIEW[1]:WINDow[1]:TRACe:Y[:SCALe]:PDIVision?
:DISPlay:SEMask:VIEW[1]:WINDow[1]:TRACe:Y[:SCALe]:PDIVision?
:DISPlay:BPOWer|:TXPower:VIEW[1]:WINDow[1]:TRACe:Y[:SCALe]:PDIVision?
:DISPlay:ACPower:VIEW[1]:WINDow[1]:TRACe:Y[:SCALe]:RLEVel <real>

Reference Level

Function

This command sets the reference level. Refer to :DISPlay:WINDow[1]:TRACe:Y[:SCALe]:RLEVel.

Related command

This command has the same function as the following commands:
:DISPlay:WINDow[1]:TRACe:Y[:SCALe]:RLEVel
:DISPlay:CHPower:VIEW[1]:WINDow[1]:TRACe:Y[:SCALe]:RLEVel
:DISPlay:OBWidth:VIEW[1]:WINDow[1]:TRACe:Y[:SCALe]:RLEVel
:DISPlay:SEMask:VIEW[1]:WINDow[1]:TRACe:Y[:SCALe]:RLEVel
:DISPlay:BPOWer|:TXPower:VIEW[1]:WINDow[1]:TRACe:Y[:SCALe]:RLEVel

:DISPlay:ACPower:VIEW[1]:WINDow[1]:TRACe:Y[:SCALe]:RLEVel?

Reference Level Query

Function

This command queries the reference level. Refer to :DISPlay:WINDow[1]:TRACe:Y[:SCALe]:RLEVel?.

Related command

This command has the same function as the following commands:
:DISPlay:WINDow[1]:TRACe:Y[:SCALe]:RLEVel?
:DISPlay:CHPower:VIEW[1]:WINDow[1]:TRACe:Y[:SCALe]:RLEVel?
:DISPlay:OBWidth:VIEW[1]:WINDow[1]:TRACe:Y[:SCALe]:RLEVel?
:DISPlay:SEMask:VIEW[1]:WINDow[1]:TRACe:Y[:SCALe]:RLEVel?
:DISPlay:BPOWer|:TXPower:VIEW[1]:WINDow[1]:TRACe:Y[:SCALe]:RLEVel?
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:TRIGger:ACPower[:SEQUence]:SOURce
	EXTernal[1]|IMMEDIATE|WIF|RF Burst|VIDeo|SG|BBIF|FRAMe
Trigger Source

Function

This command selects the trigger source. Refer to
:TRIGger[:SEQUence]:SOURce.

Related command

This command has the same function as the following commands.
:TRIGger[:SEQUence]:SOURce
:TRIGger:CHPower[:SEQUence]:SOURce
:TRIGger:OBWidth[:SEQUence]:SOURce
:TRIGger:SEMask[:SEQUence]:SOURce
:TRIGger:BPOWer|:TXPower[:SEQUence]:SOURce

:TRIGger:ACPower[:SEQUence]:SOURce?
Trigger Source Query

Function

This command queries the trigger source. Refer to
:TRIGger[:SEQUence]:SOURce?.

Related command

This command has the same function as the following commands.
:TRIGger[:SEQUence]:SOURce?
:TRIGger:CHPower[:SEQUence]:SOURce?
:TRIGger:OBWidth[:SEQUence]:SOURce?
:TRIGger:SEMask[:SEQUence]:SOURce?
:TRIGger:BPOWer|:TXPower[:SEQUence]:SOURce?
[:SENSe]:ACPower:AVERage:COUNt <integer>
Average Count

Function
This command sets the storage count.
Refer to
[:SENSe]:AVERage:COUNt.

Related command
This command has the same function as the following commands.
[:SENSe]:AVERage:COUNt
[:SENSe]:CHPower:AVERage:COUNt
[:SENSe]:OBWidth:AVERage:COUNt
[:SENSe]:SEMask:AVERage:COUNt
[:SENSe]:BPOWer|:TXPower:AVERage:COUNt

[:SENSe]:ACPower:AVERage:COUNt?
Average Count Query

Function
This command queries the storage count.
Refer to
[:SENSe]:AVERage:COUNt?.

Related command
This command has the same function as the following commands.
[:SENSe]:AVERage:COUNt?
[:SENSe]:CHPower:AVERage:COUNt?
[:SENSe]:OBWidth:AVERage:COUNt?
[:SENSe]:SEMask:AVERage:COUNt?
[:SENSe]:BPOWer|:TXPower:AVERage:COUNt?
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[:SENSe]:ACPower:AVERage[:STATE] ON|OFF|1|0

Storage Mode

Function

This command sets the storage mode for Trace A.
Refer to
:TRACe[1]|2|3|4|5|6:STORage:MODE.

Related command

This command has the same function as the following commands.
:TRACe[1]|2|3|4|5|6:STORage:MODE
[:SENSe]:CHPower:AVERage[:STATE]
[:SENSe]:OBWidth:AVERage[:STATE]
[:SENSe]:SEMask:AVERage[:STATE]
[:SENSe]:BFOWr|:TXPower:AVERage[:STATE]
[:SENSe]:SPURious:AVERage[:STATE]

[:SENSe]:ACPower:AVERage[:STATE]?

Storage Mode Query

Function

This command queries the storage mode for Trace A.
Refer to
:TRACe[1]|2|3|4|5|6:STORage:MODE?.

Related command

This command has the same function as the following commands.
:TRACe[1]|2|3|4|5|6:STORage:MODE?
[:SENSe]:CHPower:AVERage[:STATE]?
[:SENSe]:OBWidth:AVERage[:STATE]?
[:SENSe]:SEMask:AVERage[:STATE]?
[:SENSe]:BFOWr|:TXPower:AVERage[:STATE]?
[:SENSe]:SPURious:AVERage[:STATE]?
[:SENSe]:ACPower:BANDwidth[:RESolution] <freq>

Resolution Bandwidth

Function

This command sets the resolution bandwidth (RBW).
Refer to
[:SENSe]:BANDwidth|:BWIDth[:RESolution].

Related command

This command has the same function as the following commands.
[:SENSe]:BANDwidth|:BWIDth[:RESolution]
[:SENSe]:CHPower:BANDwidth[:RESolution]
[:SENSe]:OBWidth:BANDwidth[:RESolution]
[:SENSe]:BPOWer|:TXPower:BANDwidth[:RESolution]
:CALCulate:BANDwidth|:BWIDth[:RESolution]
:CALCulate:ACPower:BANDwidth[:RESolution]
:CALCulate:CHPower:BANDwidth[:RESolution]
:CALCulate:OBWidth:BANDwidth[:RESolution]
:CALCulate:BPOWer|:TXPower:BANDwidth[:RESolution]

:CALCulate:ACPower:BANDwidth[:RESolution] <freq>

Resolution Bandwidth

Function

This command sets the resolution bandwidth (RBW).
Refer to
[:SENSe]:BANDwidth|:BWIDth[:RESolution].

Related command

This command has the same function as the following commands.
[:SENSe]:BANDwidth|:BWIDth[:RESolution]
[:SENSe]:ACPower:BANDwidth[:RESolution]
[:SENSe]:CHPower:BANDwidth[:RESolution]
[:SENSe]:OBWidth:BANDwidth[:RESolution]
[:SENSe]:BPOWer|:TXPower:BANDwidth[:RESolution]
:CALCulate:BANDwidth|:BWIDth[:RESolution]
:CALCulate:ACPower:BANDwidth[:RESolution]
:CALCulate:CHPower:BANDwidth[:RESolution]
:CALCulate:OBWidth:BANDwidth[:RESolution]
:CALCulate:BPOWer|:TXPower:BANDwidth[:RESolution]
[:SENSe]:ACPower:BANDwidth[:RESolution]?

Resolution Bandwidth Query

Function

This command queries the resolution bandwidth (RBW).
Refer to

[:SENSe]:BANDwidth|:BWIDth[:RESolution]?.

Related command

This command has the same function as the following commands.

[:SENSe]:BANDwidth|:BWIDth[:RESolution]?
[:SENSe]:CHPower:BANDwidth[:RESolution]?
[:SENSe]:OBWidth:BANDwidth[:RESolution]?
[:SENSe]:BPOWer|:TXPower:BANDwidth[:RESolution]?
:CALCulate:BANDwidth|:BWIDth[:RESolution]?
:CALCulate:ACPower:BANDwidth|:BWIDth[:RESolution]?
:CALCulate:CHPower:BANDwidth[:RESolution]?
:CALCulate:OBWidth:BANDwidth[:RESolution]?
:CALCulate:BPOWer|:TXPower:BANDwidth[:RESolution]?

:CALCulate:ACPower:BANDwidth[:RESolution]?

Resolution Bandwidth Query

Function

This command queries the resolution bandwidth (RBW).
Refer to

[:SENSe]:BANDwidth|:BWIDth[:RESolution]?

Related command

This command has the same function as the following commands.

[:SENSe]:BANDwidth|:BWIDth[:RESolution]?
[:SENSe]:ACPower:BANDwidth[:RESolution]?
[:SENSe]:CHPower:BANDwidth[:RESolution]?
[:SENSe]:OBWidth:BANDwidth[:RESolution]?
[:SENSe]:BPOWer|:TXPower:BANDwidth[:RESolution]?
:CALCulate:BANDwidth|:BWIDth[:RESolution]?
:CALCulate:CHPower:BANDwidth[:RESolution]?
:CALCulate:OBWidth:BANDwidth[:RESolution]?
:CALCulate:BPOWer|:TXPower:BANDwidth[:RESolution]?
[:SENSe]:ACPower:BANDwidth[:RESolution]:AUTO ON|OFF|1|0
Resolution Bandwidth Auto/Manual

Function

This command enables/disables the automatic resolution bandwidth (RBW) setting function.
Refer to
[:SENSe]:BANDwidth|:BWIDth[:RESolution]:AUTO.

Related command

This command has the same function as the following commands.
[:SENSe]:BANDwidth|:BWIDth[:RESolution]:AUTO
[:SENSe]:CHPower:BANDwidth[:RESolution]:AUTO
[:SENSe]:OBWidth:BANDwidth[:RESolution]:AUTO
:CALCulate:BANDwidth|:BWIDth[:RESolution]:AUTO
:CALCulate:ACPower:BANDwidth[:RESolution]:AUTO
:CALCulate:CHPower:BANDwidth[:RESolution]:AUTO
:CALCulate:OBWidth:BANDwidth[:RESolution]:AUTO

:CALCulate:ACPower:BANDwidth[:RESolution]:AUTO ON|OFF|1|0
Resolution Bandwidth Auto/Manual

Function

This command sets the resolution bandwidth (RBW) automatically.
Refer to
[:SENSe]:BANDwidth|:BWIDth[:RESolution]:AUTO.

Related command

This command has the same function as the following commands.
[:SENSe]:BANDwidth|:BWIDth[:RESolution]:AUTO
[:SENSe]:ACPower:BANDwidth[:RESolution]:AUTO
[:SENSe]:CHPower:BANDwidth[:RESolution]:AUTO
[:SENSe]:OBWidth:BANDwidth[:RESolution]:AUTO
:CALCulate:BANDwidth|:BWIDth[:RESolution]:AUTO
:CALCulate:ACPower:BANDwidth[:RESolution]:AUTO
:CALCulate:CHPower:BANDwidth[:RESolution]:AUTO
:CALCulate:OBWidth:BANDwidth[:RESolution]:AUTO
[:SENSe]:ACPower:BANDwidth[:RESolution]:AUTO?
Resolution Bandwidth Auto/Manual Query

Function

This command queries whether the automatic setting of the resolution bandwidth (RBW) is on or off.
Refer to [:SENSe]:BANDwidth|:BWIDth[:RESolution]:AUTO?.

Related command

This command has the same function as the following commands.
[:SENSe]:BANDwidth|:BWIDth[:RESolution]:AUTO?
[:SENSe]:ACPower:BANDwidth[:RESolution]:AUTO?
[:SENSe]:CHPower:BANDwidth[:RESolution]:AUTO?
[:SENSe]:OBWidth:BANDwidth[:RESolution]:AUTO?
:CALCulate:BANDwidth|:BWIDth[:RESolution]:AUTO?
:CALCulate:CHPower:BANDwidth[:RESolution]:AUTO?
:CALCulate:OBWidth:BANDwidth[:RESolution]:AUTO?

[:CALCulate:ACPower:BANDwidth[:RESolution]:AUTO?]
Resolution Bandwidth Auto/Manual Query

Function

This command queries whether the automatic setting of the resolution bandwidth (RBW) is on or off.
Refer to [:SENSe]:BANDwidth|:BWIDth[:RESolution]:AUTO?.

Related command

This command has the same function as the following commands.
[:SENSe]:BANDwidth|:BWIDth[:RESolution]:AUTO?
[:SENSe]:ACPower:BANDwidth[:RESolution]:AUTO?
[:SENSe]:CHPower:BANDwidth[:RESolution]:AUTO?
[:SENSe]:OBWidth:BANDwidth[:RESolution]:AUTO?
:CALCulate:BANDwidth|:BWIDth[:RESolution]:AUTO?
:CALCulate:CHPower:BANDwidth[:RESolution]:AUTO?
:CALCulate:OBWidth:BANDwidth[:RESolution]:AUTO?
[:SENSe]:ACPower:BANDwidth[:RESolution]:MODE NORMal|CISPr
Resolution Bandwidth Normal/CISPR

Function

This command switches the Resolution Bandwidth mode.
For details, refer to
[:SENSe]:BANDwidth|:BWIDth[:RESolution]:MODE.

Related Command

This command has the same function as the following commands.
[:SENSe]:ACPower:BANDwidth[:RESolution]:MODE
[:SENSe]:CHPower:BANDwidth[:RESolution]:MODE
[:SENSe]:OBWidth:BANDwidth[:RESolution]:MODE
[:SENSe]:BPOWer|:TXPower:BANDwidth[:RESolution]:MODE
:CALCulate:BANDwidth|:BWIDth[:RESolution]:MODE
:CALCulate:ACPower:BANDwidth[:RESolution]:MODE
:CALCulate:CHPower:BANDwidth[:RESolution]:MODE
:CALCulate:OBWidth:BANDwidth[:RESolution]:MODE
:CALCulate:BPOWer|:TXPower:BANDwidth[:RESolution]:MODE

:CALCulate:ACPower:BANDwidth[:RESolution]:MODE NORMal|CISPr
Resolution Bandwidth Normal/CISPR

Function

This command switches the Resolution Bandwidth mode.
For details, refer to
[:SENSe]:BANDwidth|:BWIDth[:RESolution]:MODE.

Related Command

This command has the same function as the following commands.
[:SENSe]:ACPower:BANDwidth[:RESolution]:MODE
[:SENSe]:CHPower:BANDwidth[:RESolution]:MODE
[:SENSe]:OBWidth:BANDwidth[:RESolution]:MODE
[:SENSe]:BPOWer|:TXPower:BANDwidth[:RESolution]:MODE
:CALCulate:BANDwidth|:BWIDth[:RESolution]:MODE
:CALCulate:ACPower:BANDwidth[:RESolution]:MODE
:CALCulate:CHPower:BANDwidth[:RESolution]:MODE
:CALCulate:OBWidth:BANDwidth[:RESolution]:MODE
:CALCulate:BPOWer|:TXPower:BANDwidth[:RESolution]:MODE
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[:SENSe]:ACPower:BANDwidth[:RESolution]:MODE?
Resolution Bandwidth Normal/CISPR Query

Function
This command queries the Resolution Bandwidth mode.
For details, refer to
[:SENSe]:BANDwidth|:BWIDth[:RESolution]:MODE?.

Related Command
This command has the same function as the following commands.
[:SENSe]:ACPower:BANDwidth[:RESolution]:MODE?
[:SENSe]:CHPower:BANDwidth[:RESolution]:MODE?
[:SENSe]:OBWidth:BANDwidth[:RESolution]:MODE?
[:SENSe]:BPOWer|:TXPower:BANDwidth[:RESolution]:MODE?
:CALCulate:BANDwidth|:BWIDth[:RESolution]:MODE?
:CALCulate:ACPower:BANDwidth[:RESolution]:MODE?
:CALCulate:CHPower:BANDwidth[:RESolution]:MODE?
:CALCulate:OBWidth:BANDwidth[:RESolution]:MODE?
:CALCulate:BPOWer|:TXPower:BANDwidth[:RESolution]:MODE?

:CALCulate:ACPower:BANDwidth[:RESolution]:MODE?
Resolution Bandwidth Normal/CISPR Query

Function
This command queries the Resolution Bandwidth mode.
For details, refer to
[:SENSe]:BANDwidth|:BWIDth[:RESolution]:MODE?.

Related Command
This command has the same function as the following commands.
[:SENSe]:ACPower:BANDwidth[:RESolution]:MODE?
[:SENSe]:CHPower:BANDwidth[:RESolution]:MODE?
[:SENSe]:OBWidth:BANDwidth[:RESolution]:MODE?
[:SENSe]:BPOWer|:TXPower:BANDwidth[:RESolution]:MODE?
:CALCulate:BANDwidth|:BWIDth[:RESolution]:MODE?
:CALCulate:ACPower:BANDwidth[:RESolution]:MODE?
:CALCulate:CHPower:BANDwidth[:RESolution]:MODE?
:CALCulate:OBWidth:BANDwidth[:RESolution]:MODE?
:CALCulate:BPOWer|:TXPower:BANDwidth[:RESolution]:MODE?
[:SENSe]:ACPower:_BANDwidth:VIDeo <freq>

Video Bandwidth

Function

This command sets the video bandwidth (VBW). Refer to [:SENSe]:BANDwidth|:BWIDth:VIDeo.

Related command

This command has the same function as the following commands.
[:SENSe]:BANDwidth|:BWIDth:VIDeo
[:SENSe]:CHPower: BANDwidth:VIDeo
[:SENSe]:OBWidth:BANDwidth:VIDeo

[:SENSe]:ACPower:_BANDwidth:VIDeo?

Video Bandwidth Query

Function

This command queries the video bandwidth (VBW). Refer to [:SENSe]:BANDwidth|:BWIDth:VIDeo?.

Related command

This command has the same function as the following commands.
[:SENSe]:BANDwidth|:BWIDth:VIDeo?
[:SENSe]:CHPower: BANDwidth:VIDeo?
[:SENSe]:OBWidth:BANDwidth:VIDeo?
[:SENSe]:ACP power:Bandwidth:Video:AUTO OFF|ON|0|1
Video Bandwidth Auto/Manual

Function
This command sets the video bandwidth (VBW) automatically.
Refer to
[:SENSe]:Bandwidth:Video:AUTO.

Related command
This command has the same function as the following commands.
[:SENSe]:Bandwidth:Video:AUTO
[:SENSe]:CHPower:Bandwidth:Video:AUTO
[:SENSe]:OBWidth:Bandwidth:Video:AUTO

[:SENSe]:ACP power:Bandwidth:Video:AUTO?
Video Bandwidth Auto/Manual Query

Function
This command queries the On/Off state of the automatic video bandwidth (VBW) setting.
Refer to
[:SENSe]:Bandwidth:Video:AUTO?.

Related command
This command has the same function as the following commands.
[:SENSe]:Bandwidth:Video:AUTO?
[:SENSe]:CHPower:Bandwidth:Video:AUTO?
[:SENSe]:OBWidth:Bandwidth:Video:AUTO?
### [:SENSe]:ACPower:DETo[te]r[:FUNCTION]

**Detection Mode**

**Function**

This command selects the detection mode for the waveform pattern. Refer to 
[:SENSe]:DETo[:FUNCTION].

**Related command**

This command has the same function as the following commands.

[:SENSe]:DETo[:FUNCTION]
[:SENSe]:CHPower:DETo[:FUNCTION]
[:SENSe]:OBWidth:DETo[:FUNCTION]
[:CALCulate:DETo[:FUNCTION]]
[:CALCulate:ACPower:DETo[:FUNCTION]]
[:CALCulate:CHPower:DETo[:FUNCTION]]
[:CALCulate:OBWidth:DETo[:FUNCTION]]

### [:CALCulate]:ACPower:DETo[te]r[:FUNCTION]

**Detection Mode**

**Function**

This command selects the detection mode for the waveform pattern. Refer to 
[:SENSe]:DETo[:FUNCTION].

**Related command**

This command has the same function as the following commands.

[:SENSe]:DETo[:FUNCTION]
[:SENSe]:ACPower:DETo[:FUNCTION]
[:SENSe]:CHPower:DETo[:FUNCTION]
[:SENSe]:OBWidth:DETo[:FUNCTION]
[:SENSe]:SEMask:DETo:CARRier[:FUNCTION]
[:CALCulate:DETo[:FUNCTION]]
[:CALCulate:CHPower:DETo[:FUNCTION]]
[:CALCulate:OBWidth:DETo[:FUNCTION]]
[:SENSe]:ACPower:DETector[:FUNCtion]?
Detection Mode Query

Function

This command queries the detection mode for the waveform pattern. Refer to [:SENSe]:DETector[:FUNCtion]?

Related command

This command has the same function as the following commands:
[:SENSe]:DETector[:FUNCtion]?
[:SENSe]:CHPower:DETector[:FUNCtion]?
[:SENSe]:OBWidth:DETector[:FUNCtion]?
:CALCulate:DETector[:FUNCtion]?
:CALCulate:ACPower:DETector[:FUNCtion]?
:CALCulate:CHPower:DETector[:FUNCtion]?
:CALCulate:OBWidth:DETector[:FUNCtion]?

:CALCulate:ACPower:DETector[:FUNCtion]?
Detection Mode Query

Function

This command queries the detection mode for the waveform pattern. Refer to [:SENSe]:DETector[:FUNCtion]?

Related command

This command has the same function as the following commands:
[:SENSe]:DETector[:FUNCtion]?
[:SENSe]:ACPower:DETector[:FUNCtion]?
[:SENSe]:CHPower:DETector[:FUNCtion]?
[:SENSe]:OBWidth:DETector[:FUNCtion]?
:CALCulate:DETector[:FUNCtion]?
:CALCulate:ACPower:DETector[:FUNCtion]?
:CALCulate:CHPower:DETector[:FUNCtion]?
:CALCulate:OBWidth:DETector[:FUNCtion]?
[:SENSe]:ACPower:FREQuency:SPAN <freq>
Frequency Span

Function

This command sets the frequency span.
Refer to
[:SENSe]:FREQuency:SPAN.

Related command

This command has the same function as the following commands.
[:SENSe]:FREQuency:SPAN
[:SENSe]:CHPower:FREQuency:SPAN
[:SENSe]:OBWidth:FREQuency:SPAN

[:SENSe]:ACPower:FREQuency:SPAN?
Frequency Span Query

Function

This command queries the frequency span.
Refer to
[:SENSe]:FREQuency:SPAN?.

Related command

This command has the same function as the following commands.
[:SENSe]:FREQuency:SPAN?
[:SENSe]:CHPower:FREQuency:SPAN?
[:SENSe]:OBWidth:FREQuency:SPAN?

[:SENSe]:ACPower:FREQuency:SPAN:FULL
Full Span

Function

This command maximizes the frequency span.
Refer to
[:SENSe]:FREQuency:SPAN:FULL.

Related command

This command has the same function as the following commands.
[:SENSe]:FREQuency:SPAN:FULL
[:SENSe]:CHPower:FREQuency:SPAN:FULL
[:SENSe]:OBWidth:FREQuency:SPAN:FULL
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[:SENSe]:ACPpoweR:SWEep:POINts <integer>
Trace Point

Function

This command sets the number of the trace display points. Refer to
[:SENSe]:SWEp:POINts.

Related command

This command has the same function as the following commands.
[:SENSe]:SWEp:POINts
[:SENSe]:CHPower:SWEep:POINts
[:SENSe]:OBWidth:SWEep:POINts

[:SENSe]:ACPpoweR:SWEep:POINts?
Trace Point Query

Function

This command queries the number of the trace display points. Refer to
[:SENSe]:SWEp:POINts?.

Related command

This command has the same function as the following commands.
[:SENSe]:SWEp:POINts?
[:SENSe]:CHPower:SWEep:POINts?
[:SENSe]:OBWidth:SWEep:POINts?
[:SENSe]:ACPower:SWEep:TIME <time>
Sweep Time

Function

This command sets the sweep time. Refer to [:SENSe]:SWEep:TIME.

Related command

This command has the same function as the following commands.
[:SENSe]:SWEep:TIME
[:SENSe]:CHPower:SWEep:TIME
[:SENSe]:OBWidth:SWEep:TIME
[:SENSe]:BPOwer|:TXPower:SWEep:TIME

[:SENSe]:ACPower:SWEep:TIME?
Sweep Time Query

Function

This command queries the sweep time. Refer to [:SENSe]:SWEep:TIME?.

Related command

This command has the same function as the following commands.
[:SENSe]:SWEep:TIME?
[:SENSe]:CHPower:SWEep:TIME?
[:SENSe]:OBWidth:SWEep:TIME?
[:SENSe]:BPOwer|:TXPower:SWEep:TIME?
[:SENSe]:ACPower:SWEep:TIME:AUTO OFF|ON|0|1
Sweep Time Auto/Manual

Function

This command enables/disables the automatic sweep time setting function.
Refer to [:SENSe]:SWEep:TIME:AUTO.

Related command

This command has the same function as the following commands.
[[:SENSe]:SWEep:TIME:AUTO
[:SENSe]:CHPower:SWEep:TIME:AUTO
[:SENSe]:OBWidth:SWEep:TIME:AUTO]

[:SENSe]:ACPower:SWEep:TIME:AUTO?
Sweep Time Auto/Manual Query

Function

This command queries the On/Off state of the automatic sweep time.
Refer to [:SENSe]:SWEep:TIME:AUTO?.

Related command

This command has the same function as the following commands.
[:SENSe]:SWEep:TIME:AUTO?
[:SENSe]:CHPower:SWEep:TIME:AUTO?
[:SENSe]:OBWidth:SWEep:TIME:AUTO?
:CALCulate:ACP:MARKer[1]|2|3|4|5|6|7|8|9|10:REFerence <integer>

Relative To

Function

This command sets the reference marker when the marker mode is set to Delta.
Refer to
:CALCulate:MARKer[1]|2|3|4|5|6|7|8|9|10:REFerence

Related command

This command has the same function as the following commands.
:CALCulate:MARKer[1]|2|3|4|5|6|7|8|9|10:REFerence
:CALCulate:CHPower:MARKer[1]|2|3|4|5|6|7|8|9|10:REFerence
:CALCulate:OBWidth:MARKer[1]|2|3|4|5|6|7|8|9|10:REFerence
:CALCulate:BPOWer|:TXPower:MARKer[1]|2|3|4|5|6|7|8|9|10:REFerence

:CALCulate:ACP:MARKer[1]|2|3|4|5|6|7|8|9|10:REFerence?

Relative To

Function

This command queries the reference marker reading when the marker mode is set to Delta.
Refer to
:CALCulate:MARKer[1]|2|3|4|5|6|7|8|9|10:REFerence?

Related command

This command has the same function as the following commands.
:CALCulate:MARKer[1]|2|3|4|5|6|7|8|9|10:REFerence?
:CALCulate:CHPower:MARKer[1]|2|3|4|5|6|7|8|9|10:REFerence?
:CALCulate:OBWidth:MARKer[1]|2|3|4|5|6|7|8|9|10:REFerence?
:CALCulate:BPOWer|:TXPower:MARKer[1]|2|3|4|5|6|7|8|9|10:REFerence?
# 2.10 Burst Average Power

Table 2.10-1 lists device messages for Burst Average Power measurement.

<table>
<thead>
<tr>
<th>Function</th>
<th>Device Message</th>
</tr>
</thead>
<tbody>
<tr>
<td>Measure Burst Average Power</td>
<td>[:SENSe]:BPOWer[:TXPower[:STATe] ON</td>
</tr>
<tr>
<td></td>
<td>[:SENSe]:BPOWer[:TXPower[:STATe]?</td>
</tr>
<tr>
<td></td>
<td>:CALCulate:BPOWer[:TXPower[:STATe] ON</td>
</tr>
<tr>
<td></td>
<td>:CALCulate:BPOWer[:TXPower[:STATe]?</td>
</tr>
<tr>
<td>Noise Cancel</td>
<td>[:SENSe]:BPOWer[:TXPower:CORRection:NOISe[:AUTO] ON</td>
</tr>
<tr>
<td></td>
<td>[:SENSe]:BPOWer[:TXPower:CORRection:NOISe[:AUTO]?</td>
</tr>
<tr>
<td></td>
<td>:CALCulate:BPOWer[:TXPower:CORRection:NOISe[:AUTO] ON</td>
</tr>
<tr>
<td></td>
<td>:CALCulate:BPOWer[:TXPower:CORRection:NOISe[:AUTO]?</td>
</tr>
<tr>
<td>Burst Average Power Start Time</td>
<td>[:SENSe]:BPOWer[:TXPower:BURSt:STARt &lt;time&gt;</td>
</tr>
<tr>
<td></td>
<td>[:SENSe]:BPOWer[:TXPower:BURSt:STARt?</td>
</tr>
<tr>
<td></td>
<td>:CALCulate:BPOWer[:TXPower:BURSt:STARt &lt;time&gt;</td>
</tr>
<tr>
<td></td>
<td>:CALCulate:BPOWer[:TXPower:BURSt:STARt?</td>
</tr>
<tr>
<td>Burst Average Power Stop Time</td>
<td>[:SENSe]:BPOWer[:TXPower:BURSt:STOP &lt;time&gt;</td>
</tr>
<tr>
<td></td>
<td>[:SENSe]:BPOWer[:TXPower:BURSt:STOP?</td>
</tr>
<tr>
<td></td>
<td>:CALCulate:BPOWer[:TXPower:BURSt:STOP &lt;time&gt;</td>
</tr>
<tr>
<td></td>
<td>:CALCulate:BPOWer[:TXPower:BURSt:STOP?</td>
</tr>
<tr>
<td>Burst Average Power Configure</td>
<td>:CONFigure:BPOWer[:TXPower]</td>
</tr>
<tr>
<td>Burst Average Power Initiate</td>
<td>:INITiate:BPOWer[:TXPower]</td>
</tr>
<tr>
<td>Burst Average Power Fetch</td>
<td>:FETCh:BPOWer[:TXPower[n]?</td>
</tr>
<tr>
<td>Burst Average Power Read</td>
<td>:READ:BPOWer[:TXPower[n]?</td>
</tr>
<tr>
<td>Burst Average Power Measure</td>
<td>:MEASure:BPOWer[:TXPower[n]?</td>
</tr>
<tr>
<td>Burst Average Power Width</td>
<td>[:SENSe]:BPOWer[:TXPower:BURSt:WIDTh &lt;time&gt;</td>
</tr>
<tr>
<td></td>
<td>[:SENSe]:BPOWer[:TXPower:BURSt:WIDTh?</td>
</tr>
<tr>
<td>Title Entry</td>
<td>:DISPlay:BPOWer[:TXPower:ANNotation:TITLe:DATA &lt;string&gt;</td>
</tr>
<tr>
<td></td>
<td>:DISPlay:BPOWer[:TXPower:ANNotation:TITLe:DATA?</td>
</tr>
<tr>
<td>Log Scale Range</td>
<td>:DISPlay:BPOWer[:TXPower:VIEW[1]:WINDow[1]:TRACe:Y[:SCALe]:PDIVision &lt;rel_ampl&gt;</td>
</tr>
<tr>
<td></td>
<td>:DISPlay:BPOWer[:TXPower:VIEW[1]:WINDow[1]:TRACe:Y[:SCALe]:PDIVision?</td>
</tr>
<tr>
<td>Reference Level</td>
<td>:DISPlay:BPOWer[:TXPower:VIEW[1]:WINDow[1]:TRACe:Y[:SCALe]:RLEVel &lt;real&gt;</td>
</tr>
<tr>
<td></td>
<td>:DISPlay:BPOWer[:TXPower:VIEW[1]:WINDow[1]:TRACe:Y[:SCALe]:RLEVel?</td>
</tr>
</tbody>
</table>
### Table 2.10-1 Device messages for Burst Average Power measurement (Cont’d)

<table>
<thead>
<tr>
<th>Function</th>
<th>Device Message</th>
</tr>
</thead>
<tbody>
<tr>
<td>Trigger Source</td>
<td>:TRIGger:BPOWER[:TXPower[:SEQuence]:SOURce EXTernal[1]</td>
</tr>
<tr>
<td></td>
<td>:TRIGger:BPOWER[:TXPower[:SEQuence]:SOURce?</td>
</tr>
<tr>
<td>Average Count</td>
<td>[:SENSe]:BPOWER[:TXPower:AVERage:COUNt &lt;integer&gt;</td>
</tr>
<tr>
<td></td>
<td>[:SENSe]:BPOWER[:TXPower:AVERage:COUNt?</td>
</tr>
<tr>
<td>Storage Mode</td>
<td>[:SENSe]:BPOWER[:TXPower:AVERage[:STATE] ON</td>
</tr>
<tr>
<td></td>
<td>[:SENSe]:BPOWER[:TXPower:AVERage[:STATE]?</td>
</tr>
<tr>
<td>Sweep Time</td>
<td>[:SENSe]:BPOWER[:TXPower:SWEep:TIME &lt;time&gt;</td>
</tr>
<tr>
<td></td>
<td>[:SENSe]:BPOWER[:TXPower:SWEep:TIME?</td>
</tr>
<tr>
<td>Marker Mode</td>
<td>:CALCulate:BPOWER[:TXPower:MARKer[1]</td>
</tr>
<tr>
<td></td>
<td>:CALCulate:BPOWER[:TXPower:MARKer[1]</td>
</tr>
<tr>
<td>Zone Marker</td>
<td>:CALCulate:BPOWER[:TXPower:MARKer[1]</td>
</tr>
<tr>
<td>Frequency (Time)</td>
<td>:CALCulate:BPOWER[:TXPower:MARKer[1]</td>
</tr>
<tr>
<td>Zone Marker</td>
<td>:CALCulate:BPOWER[:TXPower:MARKer[1]</td>
</tr>
<tr>
<td>Marker Level Query</td>
<td>:CALCulate:BPOWER[:TXPower:MARKer[1]</td>
</tr>
<tr>
<td>All Marker Off</td>
<td>:CALCulate:BPOWER[:TXPower:MARKer:AOFF</td>
</tr>
<tr>
<td>Peak Search</td>
<td>:CALCulate:BPOWER[:TXPower:MARKer[1]</td>
</tr>
<tr>
<td>Resolution Bandwidth</td>
<td>[:SENSe]:BPOWER[:TXPower:BANDwidth[:RESolution] &lt;freq&gt;</td>
</tr>
<tr>
<td></td>
<td>[:SENSe]:BPOWER[:TXPower:BANDwidth[:RESolution]?</td>
</tr>
<tr>
<td>Resolution Bandwidth</td>
<td>:CALCulate:BPOWER[:TXPower:BANDwidth[:RESolution] &lt;freq&gt;</td>
</tr>
<tr>
<td>Normal/CISPR</td>
<td>[:SENSe]:BPOWER[:TXPower:BANDwidth[:RESolution]:MODE NORMal</td>
</tr>
<tr>
<td></td>
<td>[:SENSe]:BPOWER[:TXPower:BANDwidth[:RESolution]:MODE?</td>
</tr>
<tr>
<td></td>
<td>:CALCulate:BPOWER[:TXPower:BANDwidth[:RESolution]:MODE NORMal</td>
</tr>
<tr>
<td></td>
<td>:CALCulate:BPOWER[:TXPower:BANDwidth[:RESolution]:MODE?</td>
</tr>
<tr>
<td>Relative To</td>
<td>:CALCulate:BPOWER[:TXPower:MARKer[1]</td>
</tr>
<tr>
<td></td>
<td>:CALCulate:BPOWER[:TXPower:MARKer[1]</td>
</tr>
</tbody>
</table>
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[:SENSe]:BPOWer|:TXPower[:STATe] ON|OFF|1|0
Measure Burst Average Power

Function

This command executes Burst Average Power measurement.

Command

[:SENSe]:BPOWer|:TXPower[:STATe] <switch>

Parameter

<switch> Burst Average Power measurement On/Off
  ON|1 Sets Burst Average Power measurement On.
  OFF|0 Sets Burst Average Power measurement Off.

Example of Use

To set Burst Average Power measurement On.
BPOW ON

Related command

This command has the same function as the following command.
:CALCulate:BPOWer|:TXPower[:STATe]

:CALCulate:BPOWer|:TXPower[:STATe] ON|OFF|1|0
Measure Burst Average Power

Function

This command executes Burst Average Power measurement.
Refer to
[:SENSe]:BPOWer|:TXPower[:STATe].

Related command

This command has the same function as the following command.
[:SENSe]:BPOWer|:TXPower[:STATe]
Measure Burst Average Power Query

Function

This command queries the On/Off state of the Burst Average Power measurement.

Query

[:SENSe]:BPOWer[:TXPower][:STATe]?

Response

<switch>

Parameter

<switch> Burst Average Power measurement On/Off
1 On
0 Off

Example of Use

To query the On/Off state of the Burst Average Power measurement.

BPOW?
> 1

Related command

This command has the same function as the following command.

[:SENSe]:BPOWer[:TXPower][:STATe]?

Measure Burst Average Power Query

Function

This command queries the setting of Burst Average Power measurement. Refer to [:SENSe]:BPOWer[:TXPower][:STATe]?

Related command

This command has the same function as the following command.

[:SENSe]:BPOWer[:TXPower][:STATe]?
[:SENSe]:BPOWer|:TXPower:CORRection:NOISe[:AUTO] ON|OFF|1|0

Noise Cancel

Function

This command enables/disables the noise canceling function.

Command

[:SENSe]:BPOWer|:TXPower:CORRection:NOISe[:AUTO] <switch>

Parameter

<switch>       Noise canceling function On/Off
               ON|1          Enables the noise canceling function.
               OFF|0         Disables the noise canceling function.

Details

This command is fixed to Off and cannot be set in the following cases:

- Burst Average Power is Off.
- Standard is Off.
- Standard Parameter which can execute the noise canceling function is not set in Load Standard Parameter.
- Any of Span, RBW, Detection, Sweep Time, VBW (when Detection is not set to RMS), and VBW Mode (when VBW is not set to Off and when Detection is not set to RMS) has been changed from Standard Parameter.
- Scale Mode is Linear.

Example of Use

To disable the noise canceling function.

BPOW:CORR:NOIS OFF

Related command

This command has the same function as the following command.

:CALCulate:BPOWer|:TXPower:CORRection:NOISe[:AUTO]
:CALCulate:BPOWeR|:TXPower:CORRection:NOISe[:AUTO] ON|OFF|1|0

Noise Cancel

Function

This command sets whether to enable the noise canceling function.
Refer to
[:SENSe]:BPOWeR|:TXPower:CORRection:NOISe[:AUTO].

Related command

This command has the same function as the following command.
[:SENSe]:BPOWeR|:TXPower:CORRection:NOISe[:AUTO]

[:SENSe]:BPOWeR|:TXPower:CORRection:NOISe[:AUTO]?

Noise Cancel Query

Function

This command queries the On/Off state of the noise canceling function.

Query

[:SENSe]:BPOWeR|:TXPower:CORRection:NOISe[:AUTO]?

Response

<switch>

Parameter

<switch> Type of result display
  1 Noise canceling function is enabled.
  0 Noise canceling function is disabled.

Details

This command is not available in the following cases:
- Burst Average Power is Off.
- Standard is Off.
- The Standard Parameter which can execute the noise canceling function is not set in Load Standard Parameter.
- Any of Span, RBW, Detection, Sweep Time, VBW (except the case that Detection is RMS.), and VBW Mode (except the case that VBW is set to Off and the case that Detection is RMS.) has been changed from Standard Parameter.
- Scale Mode is Linear.
Example of Use

To query the noise canceling function On/Off state.

\texttt{BPOW:CORR:NOIS?}

> 0

Related command

This command has the same function as the following command.

\texttt{:CALCulate:BPOWer|:TXPower:CORRection:NOISe[:AUTO]？}

\texttt{:CALCulate:BPOWer|:TXPower:CORRection:NOISe[:AUTO]？}

Noise Cancel Query

Function

This command queries the setting of the noise canceling function.

Refer to

\texttt{[:SENSe]:BPOWer|:TXPower:CORRection:NOISe[:AUTO]？}.

Related command

This command has the same function as the following command.

\texttt{[:SENSe]:BPOWer|:TXPower:CORRection:NOISe[:AUTO]？}
### [:SENSe]:BPOWer|:TXPower:BURSt:STARt <time>

**Burst Average Power Start Time**

**Function**

This command specifies the start position (time) for Burst Average Power measurement.

**Command**

[:SENSe]:BPOWer|:TXPower:BURSt:STARt <time>

**Parameter**

<time>  
Start position (time)

**Range**  
Within the frequency range of trace display

**Resolution**  
Formula for calculating the resolution is:
Sweep Time / (Trace Point – 1)  
(Minimum value: 1ns)

**Suffix code**  
NS,US,MS,S
S is used when omitted.

**Default**  
0 s

**Example of Use**

To set the start position (time) for Burst Average Power measurement to 20 ms.  
BPOW:BURS:STAR 20MS

**Related command**

This command has the same function as the following command.  
[:CALCulate]:BPOWer|:TXPower:BURSt:STARt

---

### [:CALCulate]:BPOWer|:TXPower:BURSt:STARt <time>

**Burst Average Power Start Time**

**Function**

This command specifies the start position (time) for Burst Average Power measurement.  
Refer to  
[:SENSe]:BPOWer|:TXPower:BURSt:STARt.

**Related command**

This command has the same function as the following command.  
[:SENSe]:BPOWer|:TXPower:BURSt:STARt
[:SENSe]:BPOWer|:TXPower:BURSt:STARt?
Burst Average Power Start Time Query

Function
This command queries the start position (time) for Burst Average Power measurement.

Query
[:SENSe]:BPOWer|:TXPower:BURSt:STARt?

Response
<time>

Parameter
<time> Start position (time)
Range Within the frequency range of trace display
Resolution Formula for calculating the resolution is:
Sweep Time / (Trace Point – 1)
(Minimum value: 1ns)
Suffix code None. Value is returned in S units.

Example of Use
To query the start position (time) for Burst Average Power measurement.
BPW:BURS:STAR?
> 0.020000000

Related command
This command has the same function as the following command.
[:SENSe]:BPOWer|:TXPower:BURSt:STARt?

:CALCulate:BPOWer|:TXPower:BURSt:STARt?
Burst Average Power Start Time Query

Function
This command queries the start position (time) for Burst Average Power measurement.
Refer to [:SENSe]:BPOWer|:TXPower:BURSt:STARt?.

Related command
This command has the same function as the following command.
[:SENSe]:BPOWer|:TXPower:BURSt:STARt?
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[:SENSe]:BPOWer|:TXPower:BURSt:STOP <time>
Burst Average Power Stop Time

Function
This command specifies the stop position (time) for Burst Average Power measurement.

Command
[:SENSe]:BPOWer|:TXPower:BURSt:STOP <time>

Parameter

<time> Start position (time)
Range Within the frequency range of trace display
Resolution Formula for calculating the resolution is:
Sweep Time / (Trace Point – 1)
(Minimum value: 1ns)
Suffix code NS,US,MS,S
S is used when omitted.
Default 100 ms

Example of Use
To set the stop position (time) for Burst Average Power measurement to 200 ms.
BPW:BURS:STOP 200MS

Related command
This command has the same function as the following command.
[:CALCulate]:BPOWer|:TXPower:BURSt:STOP

:CALCulate:BPOWer|:TXPower:BURSt:STOP <time>
Burst Average Power Stop Time

Function
This command specifies the stop position (time) for Burst Average Power measurement. Refer to
[:SENSe]:BPOWer|:TXPower:BURSt:STOP.

Related command
This command has the same function as the following command.
[:SENSe]:BPOWer|:TXPower:BURSt:STOP
[:SENSe]:BPOWer|:TXPower:BURSt:STOP?

Burst Average Power Stop Time Query

Function
This command queries the stop position (time) for Burst Average Power measurement.

Query
[:SENSe]:BPOWer|:TXPower:BURSt:STOP?

Response
<time>

Parameter
<table>
<table>
<thead>
<tr>
<th>Parameter</th>
<th>Description</th>
</tr>
</thead>
<tbody>
<tr>
<td>&lt;time&gt;</td>
<td>Stop position (time)</td>
</tr>
<tr>
<td>Range</td>
<td>Within the frequency range of trace display</td>
</tr>
<tr>
<td>Resolution</td>
<td>Formula for calculating the resolution is: Sweep Time / (Trace Point – 1) (Minimum value: 1ns)</td>
</tr>
<tr>
<td>Suffix code</td>
<td>None. Value is returned in S units.</td>
</tr>
</tbody>
</table>
</table>

Example of Use
To query the stop position (time) for Burst Average Power measurement.
BPW:BURS:STOP?
> 0.200000000

Related command
This command has the same function as the following command.
[:CALCulate:BPOWer|:TXPower:BURSt:STOP?]

[:CALCulate:BPOWer|:TXPower:BURSt:STOP?]
Burst Average Power Stop Time Query

Function
This command queries the stop position (time) for Burst Average Power measurement. Refer to [:SENSe]:BPOWer|:TXPower:BURSt:STOP?.

Related command
This command has the same function as the following command.
[:SENSe]:BPOWer|:TXPower:BURSt:STOP?
:CONFigure:BPOWer|:TXPower
Burst Average Power Configure

Function
This command sets Burst Average Power measurement to On.

Command
:CONFigure:BPOWer|:TXPower

Details
No measurement is executed.

Example of Use
To set Burst Average Power measurement to On.
CONF:BPOW

:INITiate:BPOWer|:TXPower
Burst Average Power Initiate

Function
This command starts Burst Average Power measurement.

Command
:INITiate:BPOWer|:TXPower

Details
Burst Average Power measurement is set to On and the measurement starts, when this function is executed.

To read out the measurement results after executing this command, perform the synchronization control using the “*WAI” command.

Example of Use
To start Burst Average Power measurement.
INIT:BPOW
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:FETCh:BPOWer|:TXPower[n]?
Burst Average Power Fetch

Function
This command outputs the measurement result for Burst Average Power measurement.

Query
:FETCh:BPOWer|:TXPower[n]?

Response
When the result mode is “A”.
<power>  (n=1 or when omitted)

When the result mode is “B”.
<sweep_time>,<power>,<power>,<trace_point>,
-999.0,-999.0,-999.0,-999.9,
<burst_time>,-999.0
(n=1 or when omitted)
<tracedata_1>,<tracedata_2>,<tracedata_3>,
......
(n=2)

Parameter
<sweep_time>  Sweep Time
<burst_time>  Length of Burst Average Power measurement range
No suffix code, s units, 1 ns resolution
-999999999999 is returned when no measurement is executed.
<power>  Average power in burst
When Scale Mode is Log.
Log Scale Unit units (however, dBm in V and µW in W)
Returns a value without a suffix code.
<tracedata_n>  Trace data in n point
No suffix code, dBm units, 0.001 dB resolution
-999.0 is returned when no measurement is executed.
<trace_point>  Number of trace display points
No suffix code
-999.0 is returned when no measurement is executed.
Details

This function outputs the measurement result of the Burst Average Power measurement last performed. It outputs the measurement result in a state that the measurement has already been done, or in a different style.

You can use READ command if you perform a measurement along with starting a sweep again.

The return value of this function varies according to the result mode. (cf. :SYSTem:RESult:MODE)

Example of Use

To obtain the measurement result for Burst Average Power measurement (n = 1 or when omitted, B mode)

FETC:BPOW?
> 0.000010000,-73.930,-73.930,10001,-999.0,-999.0,-999.0,
-999.0,0.099990000,-999.0

:READ:BPOWer|:TXPower[n]?
Burst Average Power Read

Function

This command performs a measurement for Burst Average Power and outputs the measurement result.

It achieves the same result as when commands are sent in the order of

:INITiate:BPOWer|:TXPower
:FETCh:BPOWer|:TXPower[n]?

:MEASure:BPOWer|:TXPower[n]?
Burst Average Power Measure

Function

This command performs a measurement for Burst Average Power and outputs the measurement result.

It achieves the same result as when commands are sent in the order of

:CONFigure:BPOWer|:TXPower
:INITiate:BPOWer|:TXPower
:FETCh:BPOWer|:TXPower[n]?
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[:SENSe]:BPOWer|:TXPower:BURSt:WIDTh <time>
Burst Average Power Width

Function
This command sets the measurement width of the burst for Burst Average Power measurement.

Command
[:SENSe]:BPOWer|:TXPower:BURSt:WIDTh <time>

Parameter

<table>
<thead>
<tr>
<th>Parameter</th>
<th>Description</th>
</tr>
</thead>
<tbody>
<tr>
<td>&lt;time&gt;</td>
<td>Measurement width (time)</td>
</tr>
<tr>
<td>Range</td>
<td>Within the frequency range of trace display</td>
</tr>
<tr>
<td>Suffix code</td>
<td>NS,US,MS,KS,S</td>
</tr>
<tr>
<td></td>
<td>S is used when omitted.</td>
</tr>
</tbody>
</table>

Example of Use
To set the burst width of Burst Average Power measurement to 20 ms.
BPOW:BURS:WIDT 20ms

[:SENSe]:BPOWer|:TXPower:BURSt:WIDTh?
Burst Average Power Width Query

Function
This command queries the measurement width of the burst for Burst Average Power measurement.

Query
[:SENSe]:BPOWer|:TXPower:BURSt:WIDTh?

Response
<time>

Parameter

<table>
<thead>
<tr>
<th>Parameter</th>
<th>Description</th>
</tr>
</thead>
<tbody>
<tr>
<td>&lt;time&gt;</td>
<td>Measurement width (time)</td>
</tr>
<tr>
<td>Range</td>
<td>Within the frequency range of trace display</td>
</tr>
<tr>
<td>Suffix code</td>
<td>None. Value is returned in S units.</td>
</tr>
</tbody>
</table>

Example of Use
To query the burst width of Burst Average Power measurement.
BPOW:BURS:WIDT?
> 0.020000000
2.10 Burst Average Power

:DISPlay:BPOWer|:TXPower:ANNotation:TITLe:DATA <string>

Title Entry

Function

This command registers the title character string.
Refer to
:DISPlay:ANNotation:TITLe:DATA.

Related command

This command has the same function as the following commands.
:DISPlay:ANNotation:TITLe:DATA
:DISPlay:ACPower:ANNotation:TITLe:DATA
:DISPlay:CHPower:ANNotation:TITLe:DATA
:DISPlay:OBWidth:ANNotation:TITLe:DATA
:DISPlay:SEMask:ANNotation:TITLe:DATA

:DISPlay:BPOWer|:TXPower:ANNotation:TITLe:DATA?

Title Entry Query

Function

This command queries the title character string.
Refer to
:DISPlay:ANNotation:TITLe:DATA?.

Related command

This command has the same function as the following commands.
:DISPlay:ANNotation:TITLe:DATA?
:DISPlay:ACPower:ANNotation:TITLe:DATA?
:DISPlay:CHPower:ANNotation:TITLe:DATA?
:DISPlay:OBWidth:ANNotation:TITLe:DATA?
:DISPlay:SEMask:ANNotation:TITLe:DATA?
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**:DISPlay:BPOWer|:TXPower:VIEW[1]:WINDow[1]:TRACe:Y[:SCALe]:PDIVision <rel_ampl>**

**Log Scale Range**

**Function**

This command sets the Y-axis scale magnification when Scale Mode is set to Log. Refer to

**:DISPlay:WINDow[1]:TRACe:Y[:SCALe]:[LOGarithmic]:PDIVision**.

**Related command**

This command has the same function as the following commands.

**:DISPlay:WINDow[1]:TRACe:Y[:SCALe]:[LOGarithmic]:PDIVision**

**:DISPlay:CHPower:VIEW[1]:WINDow[1]:TRACe:Y[:SCALe]:PDIVision**

**:DISPlay:OBWidth:VIEW[1]:WINDow[1]:TRACe:Y[:SCALe]:PDIVision**

**:DISPlay:SEMask:VIEW[1]:WINDow[1]:TRACe:Y[:SCALe]:PDIVision**

**:DISPlay:BPOWer|:TXPower:VIEW[1]:WINDow[1]:TRACe:Y[:SCALe]:PDIVision?**

**Log Scale Range Query**

**Function**

This command sets the Y-axis scale magnification when Scale Mode is set to Log. Refer to

**:DISPlay:WINDow[1]:TRACe:Y[:SCALe]:[LOGarithmic]:PDIVision?**.

**Related command**

This command has the same function as the following commands.

**:DISPlay:WINDow[1]:TRACe:Y[:SCALe]:[LOGarithmic]:PDIVision?**

**:DISPlay:CHPower:VIEW[1]:WINDow[1]:TRACe:Y[:SCALe]:PDIVision?**

**:DISPlay:OBWidth:VIEW[1]:WINDow[1]:TRACe:Y[:SCALe]:PDIVision?**

**:DISPlay:SEMask:VIEW[1]:WINDow[1]:TRACe:Y[:SCALe]:PDIVision?**
2.10 Burst Average Power

:DISPlay:BPOWer|:TXPower:VIEW[1]:WINDow[1]:TRACe:Y[:SCALe]:RLEVel

<real>

Reference Level

Function

This command sets the reference level. Refer to
:DISPlay:WINDow[1]:TRACe:Y[:SCALe]:RLEVel.

Related command

This command has the same function as the following commands.
:DISPlay:WINDow[1]:TRACe:Y[:SCALe]:RLEVel
:DISPlay:CHPower:VIEW[1]:WINDow[1]:TRACe:Y[:SCALe]:RLEVel
:DISPlay:OBWidth:VIEW[1]:WINDow[1]:TRACe:Y[:SCALe]:RLEVel
:DISPlay:SEMask:VIEW[1]:WINDow[1]:TRACe:Y[:SCALe]:RLEVel

:DISPlay:BPOWer|:TXPower:VIEW[1]:WINDow[1]:TRACe:Y[:SCALe]:RLEVel

Reference Level Query

Function

This command queries the reference level. Refer to
:DISPlay:WINDow[1]:TRACe:Y[:SCALe]:RLEVel?.

Related command

This command has the same function as the following commands.
:DISPlay:WINDow[1]:TRACe:Y[:SCALe]:RLEVel?
:DISPlay:CHPower:VIEW[1]:WINDow[1]:TRACe:Y[:SCALe]:RLEVel?
:DISPlay:OBWidth:VIEW[1]:WINDow[1]:TRACe:Y[:SCALe]:RLEVel?
:DISPlay:SEMask:VIEW[1]:WINDow[1]:TRACe:Y[:SCALe]:RLEVel?
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:TRIGger:BPOWer|:TXPower[:SEQUence]:SOURce
EXTernal[1]|IMMediate|WIF|RFBurst|VIDeo|SG|BBIF|FRAMe
Trigger Source

Function

This command selects the trigger source.
Refer to
:TRIGger[:SEQUence]:SOURce.

Related command

This command has the same function as the following commands.
:TRIGger[:SEQUence]:SOURce
:TRIGger:ACPower[:SEQUence]:SOURce
:TRIGger:CHPower[:SEQUence]:SOURce
:TRIGger:OBWidth[:SEQUence]:SOURce
:TRIGger:SEMAsk[:SEQUence]:SOURce

:TRIGger:BPOWer|:TXPower[:SEQUence]:SOURce?
Trigger Source Query

Function

This command queries the trigger source.
Refer to
:TRIGger[:SEQUence]:SOURce?.

Related command

This command has the same function as the following commands.
:TRIGger[:SEQUence]:SOURce?
:TRIGger:ACPower[:SEQUence]:SOURce?
:TRIGger:CHPower[:SEQUence]:SOURce?
:TRIGger:OBWidth[:SEQUence]:SOURce?
:TRIGger:SEMAsk[:SEQUence]:SOURce?
2.10 Burst Average Power

[:SENSe]:BPOWer|:TXPower:AVERage:COUNt <integer>

Average Count

Function

This command sets the storage count.
Refer to
[:SENSe]:AVERage:COUNt.

Command

This command has the same function as the following commands.
[:SENSe]:AVERage:COUNt
[:SENSe]:ACPower:AVERage:COUNt
[:SENSe]:CHPower:AVERage:COUNt
[:SENSe]:OBWidth:AVERage:COUNt
[:SENSe]:SEMask:AVERage:COUNt

[:SENSe]:BPOWer|:TXPower:AVERage:COUNt?

Average Count Query

Function

This command queries the storage count.
Refer to
[:SENSe]:AVERage:COUNt?.

Command

This command has the same function as the following commands.
[:SENSe]:AVERage:COUNt?
[:SENSe]:ACPower:AVERage:COUNt?
[:SENSe]:CHPower:AVERage:COUNt?
[:SENSe]:OBWidth:AVERage:COUNt?
[:SENSe]:SEMask:AVERage:COUNt?
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[:SENSe]:BPOWER|:TXPower:AVERAGE[:STATE] ON|OFF|1|0

Storage Mode

Function

This command sets the storage mode for Trace A.
Refer to
:TRACe[1]|2|3|4|5|6:STORage:MODE.

Related command

This command has the same function as the following commands.
:TRACe[1]|2|3|4|5|6:STORage:MODE
[:SENSe]:ACPower:AVERAGE[:STATE]
[:SENSe]:CHPower:AVERAGE[:STATE]
[:SENSe]:OBWidth:AVERAGE[:STATE]
[:SENSe]:SEMask:AVERAGE[:STATE]
[:SENSe]:SPURious:AVERAGE[:STATE]

[:SENSe]:BPOWER|:TXPower:AVERAGE[:STATE]?

Storage Mode Query

Function

This command queries the storage mode for Trace A.
Refer to
:TRACe[1]|2|3|4|5|6:STORage:MODE?.

Related command

This command has the same function as the following commands.
:TRACe[1]|2|3|4|5|6:STORage:MODE?
[:SENSe]:ACPower:AVERAGE[:STATE]?
[:SENSe]:CHPower:AVERAGE[:STATE]?
[:SENSe]:OBWidth:AVERAGE[:STATE]?
[:SENSe]:SEMask:AVERAGE[:STATE]?
[:SENSe]:SPURious:AVERAGE[:STATE]?
[SENSe]:BPOWER|TXPower:SWEep:TIME <time>

Sweep Time

Function

This command sets the sweep time.
Refer to
[:SENSe]:SWEep:TIME.

Related command

This command has the same function as the following commands.
[:SENSe]:SWEep:TIME
[:SENSe]:ACPower:SWEep:TIME
[:SENSe]:CHPower:SWEep:TIME
[:SENSe]:OBWidth:SWEep:TIME

[SENSe]:BPOWER|TXPower:SWEep:TIME?

Sweep Time Query

Function

This command queries the sweep time.
Refer to
[:SENSe]:SWEep:TIME?.

Related command

This command has the same function as the following commands.
[:SENSe]:SWEep:TIME?
[:SENSe]:ACPower:SWEep:TIME?
[:SENSe]:CHPower:SWEep:TIME?
[:SENSe]:OBWidth:SWEep:TIME?
Chapter 2  SCPI Device Message Details

NORMal|POSition|DELTa|FIXed|OFF

Marker Mode

Function

This command sets the marker mode.
Refer to
:CALCulate:MARKer[1]|2|3|4|5|6|7|8|9|10:MODE.

Related command

This command has the same function as the following commands.
:CALCulate:MARKer[1]|2|3|4|5|6|7|8|9|10:MODE
:CALCulate:ACPower:MARKer[1]|2|3|4|5|6|7|8|9|10:MODE
:CALCulate:CHPower:MARKer[1]|2|3|4|5|6|7|8|9|10:MODE
:CALCulate:OBWidth:MARKer[1]|2|3|4|5|6|7|8|9|10:MODE


Marker Mode Query

Function

This command queries the marker mode.
Refer to
:CALCulate:MARKer[1]|2|3|4|5|6|7|8|9|10:MODE?.

Related command

This command has the same function as the following commands.
:CALCulate:MARKer[1]|2|3|4|5|6|7|8|9|10:MODE?
:CALCulate:ACPower:MARKer[1]|2|3|4|5|6|7|8|9|10:MODE?
:CALCulate:CHPower:MARKer[1]|2|3|4|5|6|7|8|9|10:MODE?
:CALCulate:OBWidth:MARKer[1]|2|3|4|5|6|7|8|9|10:MODE?

<freq>|<time>

Zone Marker Frequency (Time)

Function

This command moves the center of the zone marker to the specified frequency or time.
Refer to :CALCulate:MARKer[1]|2|3|4|5|6|7|8|9|10:X.

Related command

This command has the same function as the following commands.
:CALCulate:MARKer[1]|2|3|4|5|6|7|8|9|10:X

:CALCulate:BPOWer|:TXPower:MARKer[1]|2|3|4|5|6|7|8|9|10:X?

Zone Marker Frequency (Time) Query

Function

This command queries the center of the zone marker.
Refer to :CALCulate:MARKer[1]|2|3|4|5|6|7|8|9|10:X?.

Related command

This command has the same function as the following commands.
:CALCulate:MARKer[1]|2|3|4|5|6|7|8|9|10:X?
:CALCulate:ACPower:MARKer[1]|2|3|4|5|6|7|8|9|10:X?
:CALCulate:CHPower:MARKer[1]|2|3|4|5|6|7|8|9|10:X?
:CALCulate:OBWidth:MARKer[1]|2|3|4|5|6|7|8|9|10:X?
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<integer>
Zone Marker Position

Function

This command moves the center of the zone marker to the specified position.
Refer to

Related command

This command has the same function as the following commands.
:CALCulate:MARKer[1]|2|3|4|5|6|7|8|9|10:X:POSition

Zone Marker Position Query

Function

This command queries the center of the zone marker.
Refer to
:CALCulate:MARKer[1]|2|3|4|5|6|7|8|9|10:X:POSition?.

Related command

This command has the same function as the following commands.
:CALCulate:MARKer[1]|2|3|4|5|6|7|8|9|10:X:POSition?
:CALCulate:OBWidth:MARKer[1]|2|3|4|5|6|7|8|9|10:X:POSition?

Marker Level Query

Function

This command queries the level at the marker point.
Refer to
:CALCulate:MARKer[1]|2|3|4|5|6|7|8|9|10[:PEAK]:Y?.

Related command

This command has the same function as the following commands.
:CALCulate:MARKer[1]|2|3|4|5|6|7|8|9|10[:PEAK]:Y?
:CALCulate:ACPower:MARKer[1]|2|3|4|5|6|7|8|9|10:Y?
:CALCulate:CHPower:MARKer[1]|2|3|4|5|6|7|8|9|10:Y?
:CALCulate:OBWidth:MARKer[1]|2|3|4|5|6|7|8|9|10:Y?
:CALCulate:SPURious:MARKer[1]|2|3|4|5|6|7|8|9|10:Y?

:CALCulate:BPOWer|:TXPower:MARKer:AOFF

All Marker Off

Function

This command sets all the markers to Off.
Refer to
:CALCulate:MARKer:AOFF.

Related command

This command has the same function as the following commands.
:CALCulate:MARKer:AOFF
:CALCulate:ACPower:MARKer:AOFF
:CALCulate:CHPower:MARKer:AOFF
:CALCulate:OBWidth:MARKer:AOFF
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:CALCulate:BPOWer|:TXPower:MARKer[1]|2|3|4|5|6|7|8|9|10:MAXimum

Peak Search

Function

This command searches for the maximum level point of the active trace and moves the marker point.

Refer to


Related command

This command has the same function as the following commands.

:CALCulate:MARKer[1]|2|3|4|5|6|7|8|9|10:MAXimum

:CALCulate:ACPower:MARKer[1]|2|3|4|5|6|7|8|9|10:MAXimum

:CALCulate:CHPower:MARKer[1]|2|3|4|5|6|7|8|9|10:MAXimum

:CALCulate:OBWidth:MARKer[1]|2|3|4|5|6|7|8|9|10:MAXimum


Power Peak Search

Function

This command moves the active marker to the position where the peak power of the zone width of the active marker becomes maximum in the measurement band.

Refer to

:CALCulate:MARKer[1]|2|3|4|5|6|7|8|9|10:MAXimum:POWer

Related command

This command has the same function as the following command.

:CALCulate:MARKer[1]|2|3|4|5|6|7|8|9|10:MAXimum:POWer


:CALCulate:CHPower:MARKer[1]|2|3|4|5|6|7|8|9|10:MAXimum:POWer

:CALCulate:OBWidth:MARKer[1]|2|3|4|5|6|7|8|9|10:MAXimum:POWer

:CALCulate:SPURious:MARKer[1]|2|3|4|5|6|7|8|9|10:MAXimum:POWer
:CALCulate:BPOWer|:TXPower:MARKer[1]|2|3|4|5|6|7|8|9|10:MINimum

Minimum Search

Function

This command searches for the minimum level point of the active trace and moves the marker point to that point.

Refer to

:CALCulate:MARKer[1]|2|3|4|5|6|7|8|9|10:MINimum

Related Command

This command has the same function as the following command.

:CALCulate:MARKer[1]|2|3|4|5|6|7|8|9|10:MINimum

[:SENSe]:BPOWer|:TXPower:BANDwidth[:RESolution] <freq>

Resolution Bandwidth

Function

This command sets the resolution bandwidth (RBW).

Refer to

[:SENSe]:BANDwidth|:BWIDth[:RESolution].

Related command

This command has the same function as the following commands.

[:SENSe]:BANDwidth|:BWIDth[:RESolution]

[:SENSe]:ACPower:BANDwidth[:RESolution]

[:SENSe]:CHPower:BANDwidth[:RESolution]

[:SENSe]:OBWidth:BANDwidth[:RESolution]

:CALCulate:BANDwidth|:BWIDth[:RESolution]

:CALCulate:ACPower:BANDwidth[:RESolution]

:CALCulate:CHPower:BANDwidth[:RESolution]

:CALCulate:OBWidth:BANDwidth[:RESolution]

:CALCulate:BPOWer|:TXPower:BANDwidth[:RESolution]
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:CALCulate:BPOWer|:TXPower:BANDwidth[:RESolution] <freq>
Resolution Bandwidth

Function

This command sets the resolution bandwidth (RBW).
Refer to
[:SENSe]:BANDwidth|:BWIDth[:RESolution].

Related command

This command has the same function as the following commands.
[:SENSe]:BANDwidth|:BWIDth[:RESolution]
[:SENSe]:ACPower:BANDwidth[:RESolution]
[:SENSe]:CHPower:BANDwidth[:RESolution]
[:SENSe]:OBWidth:BANDwidth[:RESolution]
[:SENSe]:BPOWer|:TXPower:BANDwidth[:RESolution]
:CALCulate:BANDwidth|:BWIDth[:RESolution]
:CALCulate:ACPower:BANDwidth[:RESolution]
:CALCulate:CHPower:BANDwidth[:RESolution]
:CALCulate:OBWidth:BANDwidth[:RESolution]

[:SENSe]:BPOWer|:TXPower:BANDwidth[:RESolution]?
Resolution Bandwidth Query

Function

This command queries the resolution bandwidth (RBW).
Refer to
[:SENSe]:BANDwidth|:BWIDth[:RESolution]?.

Related command

This command has the same function as the following commands.
[:SENSe]:BANDwidth|:BWIDth[:RESolution]?
[:SENSe]:ACPower:BANDwidth[:RESolution]?
[:SENSe]:CHPower:BANDwidth[:RESolution]?
[:SENSe]:OBWidth:BANDwidth[:RESolution]?
:CALCulate:BANDwidth|:BWIDth[:RESolution]?
:CALCulate:ACPower:BANDwidth[:RESolution]?
:CALCulate:CHPower:BANDwidth[:RESolution]?
:CALCulate:OBWidth:BANDwidth[:RESolution]?
:CALCulate:BPOWer|:TXPower:BANDwidth[:RESolution]?
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:CALCulate:BPOWer|:TXPower:BANDwidth[:RESolution]?
Resolution Bandwidth Query

Function

This command queries the resolution bandwidth (RBW). Refer to [:SENSe]:BANDwidth|:BWIDth[:RESolution]?.

Related command

This command has the same function as the following commands.
[:SENSe]:BANDwidth|:BWIDth[:RESolution]?
[:SENSe]:ACPower:BANDwidth[:RESolution]?
[:SENSe]:CHPower:BANDwidth[:RESolution]?
[:SENSe]:OBWidth:BANDwidth[:RESolution]?
[:SENSe]:BPOWer|:TXPower:BANDwidth[:RESolution]?
:CALCulate:BANDwidth|:BWIDth[:RESolution]?
:CALCulate:ACPower:BANDwidth[:RESolution]?
:CALCulate:CHPower:BANDwidth[:RESolution]?
:CALCulate:OBWidth:BANDwidth[:RESolution]?

[:SENSe]:BPOWer|:TXPower:BANDwidth[:RESolution]:MODE
NORMal|CISPr
Resolution Bandwidth Normal/CISPR

Function

This command switches the Resolution Bandwidth mode. For details, refer to [:SENSe]:BANDwidth|:BWIDth[:RESolution]:MODE.

Related Command

This command has the same function as the following commands.
[:SENSe]:ACPower:BANDwidth[:RESolution]:MODE
[:SENSe]:CHPower:BANDwidth[:RESolution]:MODE
[:SENSe]:OBWidth:BANDwidth[:RESolution]:MODE
[:SENSe]:BPOWer|:TXPower:BANDwidth[:RESolution]:MODE
:CALCulate:BANDwidth|:BWIDth[:RESolution]:MODE
:CALCulate:ACPower:BANDwidth[:RESolution]:MODE
:CALCulate:CHPower:BANDwidth[:RESolution]:MODE
:CALCulate:OBWidth:BANDwidth[:RESolution]:MODE
:CALCulate:BPOWer|:TXPower:BANDwidth[:RESolution]:MODE
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:CALCulate:BPOWer|:TXPower:BANDwidth[:RESolution]:MODE
NORMal|CISPr
Resolution Bandwidth Normal/CISPR

Function

This command switches the Resolution Bandwidth mode.
For details, refer to [:SENSe]:BANDwidth|:BWIDth[:RESolution]:MODE.

Related Command

This command has the same function as the following commands.
[:SENSe]:ACPower:BANDwidth[:RESolution]:MODE
[:SENSe]:CHPower:BANDwidth[:RESolution]:MODE
[:SENSe]:OBWidth:BANDwidth[:RESolution]:MODE
[:SENSe]:BPOWer|:TXPower:BANDwidth[:RESolution]:MODE
:CALCulate:BANDwidth|:BWIDth[:RESolution]:MODE
:CALCulate:ACPower:BANDwidth[:RESolution]:MODE
:CALCulate:CHPower:BANDwidth[:RESolution]:MODE
:CALCulate:OBWidth:BANDwidth[:RESolution]:MODE
:CALCulate:BPOWer|:TXPower:BANDwidth[:RESolution]:MODE

[:SENSe]:BPOWer|:TXPower:BANDwidth[:RESolution]:MODE?
Resolution Bandwidth Normal/CISPR Query

Function

This command queries the Resolution Bandwidth mode.
For details, refer to [:SENSe]:BANDwidth|:BWIDth[:RESolution]:MODE?.

Related Command

This command has the same function as the following commands.
[:SENSe]:ACPower:BANDwidth[:RESolution]:MODE?
[:SENSe]:CHPower:BANDwidth[:RESolution]:MODE?
[:SENSe]:OBWidth:BANDwidth[:RESolution]:MODE?
[:SENSe]:BPOWer|:TXPower:BANDwidth[:RESolution]:MODE?
:CALCulate:BANDwidth|:BWIDth[:RESolution]:MODE?
:CALCulate:ACPower:BANDwidth[:RESolution]:MODE?
:CALCulate:CHPower:BANDwidth[:RESolution]:MODE?
:CALCulate:OBWidth:BANDwidth[:RESolution]:MODE?
:CALCulate:BPOWer|:TXPower:BANDwidth[:RESolution]:MODE?
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:CALCulate:BPOWer|:TXPower:BANDwidth[:RESolution]:MODE?

Resolution Bandwidth Normal/CISPR Query

Function

This command queries the Resolution Bandwidth mode. For details, refer to [:SENSe]:BANDwidth|:BWIDth[:RESolution]:MODE?.

Related Command


:CALCulate:BPOWer|:TXPower:MARKer[1]|2|3|4|5|6|7|8|9|10:REFerence

<integer>

Relative To

Function

This command sets the reference marker when the marker mode is set to Delta. Refer To :CALCulate:MARKer[1]|2|3|4|5|6|7|8|9|10:REFerence.

Related command

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:CALCulate:BPOWer:TXPower:MARKer[1]|2|3|4|5|6|7|8|9|10:REFerence?

Relative To

Function

This command queries the reference marker when the marker mode is set to Delta.

Refer To

:CALCulate:MARKer[1]|2|3|4|5|6|7|8|9|10:REFerence?.

Related command

This command has the same function as the following commands.

:CALCulate:MARKer[1]|2|3|4|5|6|7|8|9|10:REFerence?

:CALCulate:ACPower:MARKer[1]|2|3|4|5|6|7|8|9|10:REFerence?

:CALCulate:CHPower:MARKer[1]|2|3|4|5|6|7|8|9|10:REFerence?

:CALCulate:OBDwidth:MARKer[1]|2|3|4|5|6|7|8|9|10:REFerence?
## 2.11 Channel Power

Table 2.11-1 lists device messages for Channel Power measurement.

<table>
<thead>
<tr>
<th>Function</th>
<th>Device Message</th>
</tr>
</thead>
<tbody>
<tr>
<td>Measure Channel Power</td>
<td>[:SENSe]:CHPower[:STATe] ON</td>
</tr>
<tr>
<td></td>
<td>[:SENSe]:CHPower[:STATe]?</td>
</tr>
<tr>
<td></td>
<td>:CALCulate:CHPower[:STATe] ON</td>
</tr>
<tr>
<td></td>
<td>:CALCulate:CHPower[:STATe]?</td>
</tr>
<tr>
<td>Channel Power Channel Center Frequency</td>
<td>[:SENSe]:CHPower:FREQuency:CENTer &lt;freq&gt;</td>
</tr>
<tr>
<td></td>
<td>[:SENSe]:CHPower:FREQuency:CENTer?</td>
</tr>
<tr>
<td></td>
<td>:CALCulate:CHPower:FREQuency:CENTer</td>
</tr>
<tr>
<td></td>
<td>:CALCulate:CHPower:FREQuency:CENTer?</td>
</tr>
<tr>
<td>Channel Power Channel Bandwidth</td>
<td>[:SENSe]:CHPower:BANDwidth:INTegration &lt;freq&gt;</td>
</tr>
<tr>
<td></td>
<td>[:SENSe]:CHPower:BANDwidth:INTegration?</td>
</tr>
<tr>
<td></td>
<td>:CALCulate:CHPower:BANDwidth:INTegration &lt;freq&gt;</td>
</tr>
<tr>
<td></td>
<td>:CALCulate:CHPower:BANDwidth:INTegration?</td>
</tr>
<tr>
<td>Channel Power Filter Type</td>
<td>[:SENSe]:CHPower:FILTer[:RRC][:STATe] ON</td>
</tr>
<tr>
<td></td>
<td>[:SENSe]:CHPower:FILTer[:RRC][:STATe]?</td>
</tr>
<tr>
<td></td>
<td>:CALCulate:CHPower:FILTer[:RRC][:STATe] ON</td>
</tr>
<tr>
<td></td>
<td>:CALCulate:CHPower:FILTer[:RRC][:STATe]?</td>
</tr>
<tr>
<td>Channel Power Rolloff Ratio</td>
<td>[:SENSe]:CHPower:FILTer[:RRC]:ALPHa &lt;real&gt;</td>
</tr>
<tr>
<td></td>
<td>[:SENSe]:CHPower:FILTer[:RRC]:ALPHa?</td>
</tr>
<tr>
<td></td>
<td>:CALCulate:CHPower:FILTer[:RRC]:ALPHa &lt;real&gt;</td>
</tr>
<tr>
<td></td>
<td>:CALCulate:CHPower:FILTer[:RRC]:ALPHa?</td>
</tr>
<tr>
<td>Channel Power Configure</td>
<td>:CONFigure:CHPower</td>
</tr>
<tr>
<td>Channel Power Initiate</td>
<td>:INITiate:CHPower</td>
</tr>
<tr>
<td>Channel Power Fetch</td>
<td>:FETCh:CHPower[n]?</td>
</tr>
<tr>
<td></td>
<td>:FETCh:CHPower:CHPower?</td>
</tr>
<tr>
<td></td>
<td>:FETCh:CHPower:DENSity?</td>
</tr>
<tr>
<td>Channel Power Read</td>
<td>:READ:CHPower[n]?</td>
</tr>
<tr>
<td></td>
<td>:READ:CHPower:CHPower?</td>
</tr>
<tr>
<td></td>
<td>:READ:CHPower:DENSity?</td>
</tr>
<tr>
<td>Channel Power Measure</td>
<td>:MEASure:CHPower[n]?</td>
</tr>
<tr>
<td></td>
<td>:MEASure:CHPower:CHPower?</td>
</tr>
<tr>
<td></td>
<td>:MEASure:CHPower:DENSity?</td>
</tr>
<tr>
<td>All Marker Off</td>
<td>:CALCulate:CHPower:MARKer:AOFF</td>
</tr>
</tbody>
</table>
### Table 2.11-1  Device messages for Channel Power measurement (Cont’d)

<table>
<thead>
<tr>
<th>Function</th>
<th>Device Message</th>
</tr>
</thead>
<tbody>
<tr>
<td><strong>Power Peak Search</strong></td>
<td>:CALCulate:CHPower:MARKer[1]</td>
</tr>
<tr>
<td><strong>Minimum Search</strong></td>
<td>:CALCulate:CHPower:MARKer[1]</td>
</tr>
<tr>
<td><strong>Marker Mode</strong></td>
<td>:CALCulate:CHPower:MARKer[1]</td>
</tr>
<tr>
<td></td>
<td>:CALCulate:CHPower:MARKer[1]</td>
</tr>
<tr>
<td><strong>Zone Marker Frequency (Time)</strong></td>
<td>:CALCulate:CHPower:MARKer[1]</td>
</tr>
<tr>
<td><strong>Zone Marker Position</strong></td>
<td>:CALCulate:CHPower:MARKer[1]</td>
</tr>
<tr>
<td><strong>Marker Level Query</strong></td>
<td>:CALCulate:CHPower:MARKer[1]</td>
</tr>
<tr>
<td><strong>Title Entry</strong></td>
<td>:DISPlay:CHPower:ANNotation:TITLe:DATA &lt;string&gt;</td>
</tr>
<tr>
<td></td>
<td>:DISPlay:CHPower:ANNotation:TITLe:DATA?</td>
</tr>
<tr>
<td><strong>Log Scale Range</strong></td>
<td>:DISPlay:CHPower:VIEW[1]:WINDow[1]:TRACe:Y[:SCALe]:PDIVision &lt;rel_ampl&gt;</td>
</tr>
<tr>
<td><strong>Reference Level</strong></td>
<td>:DISPlay:CHPower:VIEW[1]:WINDow[1]:TRACe:Y[:SCALe]:RLEVel &lt;real&gt;</td>
</tr>
<tr>
<td><strong>Trigger Source</strong></td>
<td>:TRIGger:CHPower[:SEQuence]:SOURce EXternal[1]</td>
</tr>
<tr>
<td></td>
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</tr>
<tr>
<td><strong>Average Count</strong></td>
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</tr>
<tr>
<td></td>
<td>[:SENSe]:CHPower:AVERage:COUNt?</td>
</tr>
<tr>
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</tr>
<tr>
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</tr>
<tr>
<td></td>
<td>[:SENSe]:CHPower:BANDwidth[:RESolution]?</td>
</tr>
<tr>
<td></td>
<td>:CALCulate:CHPower:BANDwidth[:RESolution] &lt;freq&gt;</td>
</tr>
<tr>
<td></td>
<td>:CALCulate:CHPower:BANDwidth[:RESolution]?</td>
</tr>
<tr>
<td><strong>Resolution Bandwidth Auto/Manual</strong></td>
<td>[:SENSe]:CHPower:BANDwidth[:RESolution]:AUTO ON</td>
</tr>
<tr>
<td></td>
<td>[:SENSe]:CHPower:BANDwidth[:RESolution]:AUTO?</td>
</tr>
<tr>
<td></td>
<td>:CALCulate:CHPower:BANDwidth[:RESolution]:AUTO ON</td>
</tr>
<tr>
<td></td>
<td>:CALCulate:CHPower:BANDwidth[:RESolution]:AUTO?</td>
</tr>
<tr>
<td><strong>Resolution Bandwidth Normal/CISPR</strong></td>
<td>[:SENSe]:CHPower:BANDwidth[:RESolution]:MODE NORMal</td>
</tr>
<tr>
<td></td>
<td>[:SENSe]:CHPower:BANDwidth[:RESolution]:MODE?</td>
</tr>
<tr>
<td></td>
<td>:CALCulate:CHPower:BANDwidth[:RESolution]:MODE NORMal</td>
</tr>
<tr>
<td></td>
<td>:CALCulate:CHPower:BANDwidth[:RESolution]:MODE?</td>
</tr>
<tr>
<td></td>
<td>:CALCulate:CHPower:BANDwidth[:RESolution]:MODE?</td>
</tr>
<tr>
<td><strong>Video Bandwidth</strong></td>
<td>[:SENSe]:CHPower:BANDwidth:VIDeo &lt;freq&gt;</td>
</tr>
<tr>
<td></td>
<td>[:SENSe]:CHPower:BANDwidth:VIDeo?</td>
</tr>
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### 2.11 Channel Power

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</tr>
<tr>
<td>Auto/Manual</td>
<td>[:SENSe]:CHPower:BANDwidth:VIDeo:AUTO?</td>
</tr>
<tr>
<td>Detection Mode</td>
<td>[:SENSe]:CHPower:DETector[:FUNCTION]  NORMal</td>
</tr>
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<td></td>
<td>[:SENSe]:CHPower:DETector[:FUNCTION]?</td>
</tr>
<tr>
<td>Frequency Span</td>
<td>[:SENSe]:CHPower:FREQuency:SPAN &lt;freq&gt;</td>
</tr>
<tr>
<td></td>
<td>[:SENSe]:CHPower:FREQuency:SPAN?</td>
</tr>
<tr>
<td>Full Span</td>
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</tr>
<tr>
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</tr>
<tr>
<td></td>
<td>[:SENSe]:CHPower:SWEep:POINts?</td>
</tr>
<tr>
<td>Sweep Time</td>
<td>[:SENSe]:CHPower:SWEep:TIME &lt;time&gt;</td>
</tr>
<tr>
<td></td>
<td>[:SENSe]:CHPower:SWEep:TIME?</td>
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<tr>
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</tr>
<tr>
<td>Auto/Manual</td>
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</tr>
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<td>Relative To</td>
<td>:CALCulate:CHPower:MARKer[1]</td>
</tr>
<tr>
<td></td>
<td>:CALCulate:CHPower:MARKer[1]</td>
</tr>
</tbody>
</table>
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[:SENSe]:CHPower[:STATe] ON|OFF|1|0
Measure Channel Power

Function
This command executes Channel Power measurement.

Command
[:SENSe]:CHPower[:STATe] <switch>

Parameter

- <switch>  CHP measurement On/Off
- ON|1  Sets CHP measurement to On.
- OFF|0  Sets CHP measurement to Off (Default).

Example of Use
To set CHP measurement to On.
CHP ON

Related command
This command has the same function as the following command.
[:CALCulate]:CHPower[:STATe]

[:CALCulate]:CHPower[:STATe] ON|OFF|1|0
Measure Channel Power

Function
This command executes Channel Power measurement.
Refer to [:SENSe]:CHPower[:STATe].

Related command
This command has the same function as the following command.
[:SENSe]:CHPower[:STATe]
[SENSe]:CHPower[:STATe]?
Measure Channel Power Query

Function

This command queries the On/Off state of the Channel Power measurement.

Command

[:SENSe]:CHPower[:STATe]?

Parameter

<switch>  CHP measurement On/Off

1  On
0  Off

Example of Use

To query the On/Off state of the CHP measurement.
CHP?
> 1

Related command

This command has the same function as the following command.
[:CALCulate]:CHPower[:STATe]?

:CALCulate:CHPower[:STATe]?
Measure Channel Power Query

Function

This command queries the Channel Power measurement On/Off state.
Refer to
[:SENSe]:CHPower[:STATe]?

Related command

This command has the same function as the following command.
[:SENSe]:CHPower[:STATe]?
[:SENSe]:CHPower:FREQuency:CENTer <freq>
Channel Power Channel Center Frequency

Function
This command sets the center frequency for Channel Power measurement.

Command
[:SENSe]:CHPower:FREQuency:CENTer <freq>

Parameter
<table>
<thead>
<tr>
<th>Parameter</th>
<th>Description</th>
</tr>
</thead>
<tbody>
<tr>
<td>&lt;freq&gt;</td>
<td>Channel center frequency</td>
</tr>
<tr>
<td>Range</td>
<td>(Start Frequency) to (Stop Frequency)</td>
</tr>
<tr>
<td>Resolution</td>
<td>1 Hz</td>
</tr>
<tr>
<td>Suffix code</td>
<td>HZ,KHZ,KZ,MHz,MZ,GHZ,GZ</td>
</tr>
<tr>
<td></td>
<td>Hz is used when omitted.</td>
</tr>
<tr>
<td>Default</td>
<td>Center Frequency</td>
</tr>
</tbody>
</table>

Example of Use
To set the channel power center frequency to 6.01 GHz.
CHP:FREQ:CENT 6.01GHz

Related command
This command has the same function as the following command.
[:CALCulate:CHPower:FREQuency:CENTer

[:CALCulate]:CHPower:FREQuency:CENTer <freq>
Channel Power Channel Center Frequency

Function
This command sets the center frequency for Channel Power measurement.
Refer to
[:SENSe]:CHPower:FREQuency:CENTer.

Related command
This command has the same function as the following command.
[:SENSe]:CHPower:FREQuency:CENTer
[:SENSe]:CHPower:FREQuency:CENTer?

Channel Power Channel Center Frequency Query

Function

This command queries the center frequency for Channel Power measurement.

Query

[:SENSe]:CHPower:FREQuency:CENTer?

Response

<freq>

Parameter

<freq> Center frequency of channel
Range (Start Frequency) to (Stop Frequency)
Resolution 1 Hz
Suffix code None. Value is returned in Hz units.

Example of Use

To query the center frequency for Channel Power measurement.
CHP:FREQ:CENT?
> 6010000000

Related command

This command has the same function as the following command.
[:SENSe]:CHPower:FREQuency:CENTer?

:CALCulate:CHPower:FREQuency:CENTer?

Channel Power Channel Center Frequency Query

Function

This command queries the center frequency for Channel Power measurement.
Refer to
[:SENSe]:CHPower:FREQuency:CENTer?.

Related command

This command has the same function as the following command.
[:SENSe]:CHPower:FREQuency:CENTer?
[:SENSe]:CHPower:BANDwidth:INTegration <freq>
Channel Power Channel Bandwidth

Function
This command sets the channel bandwidth for Channel Power measurement.

Command
[:SENSe]:CHPower:BANDwidth:INTegration <freq>

Parameter

<table>
<thead>
<tr>
<th>Parameter</th>
<th>Value</th>
</tr>
</thead>
<tbody>
<tr>
<td>&lt;freq&gt;</td>
<td>Channel bandwidth</td>
</tr>
<tr>
<td>Range</td>
<td>1 Hz to 2.5 GHz</td>
</tr>
<tr>
<td>Resolution</td>
<td>1 Hz</td>
</tr>
<tr>
<td>Suffix code</td>
<td>HZ,KHZ,KZ,MHZ,MZ,GHZ,GZ</td>
</tr>
<tr>
<td></td>
<td>Hz is used when omitted.</td>
</tr>
<tr>
<td>Default</td>
<td>3.84 MHz</td>
</tr>
</tbody>
</table>

Example of Use
To set the channel bandwidth to 1 MHz.
CHP:FREQ:INT 1MHZ

Related command
This command has the same function as the following command.
[:CALCulate:CHPower:BANDwidth:INTegration]

:CALCulate:CHPower:BANDwidth:INTegration <freq>
Channel Power Channel Bandwidth

Function
This command sets the channel bandwidth for Channel Power measurement.
Refer to
[:SENSe]:CHPower:BANDwidth:INTegration.

Related command
This command has the same function as the following command.
[:SENSe]:CHPower:BANDwidth:INTegration
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[:SENSe]:CHPower:BADNwidth:INTegration?
Channel Power Channel Bandwidth Query

Function
This command queries the channel bandwidth for Channel Power measurement.

Query
[:SENSe]:CHPower:BADNwidth:INTegration?

Response
<freq>

Parameter
<freq> Channel bandwidth
Range 1 Hz to 2.5 GHz
Resolution 1 Hz
Suffix code None. Value is returned in Hz units.

Example of Use
To query the channel bandwidth.
CHP:FREQ:INT?
> 1000000

Related command
This command has the same function as the following command.
[:SENSe]:CHPower:BADNwidth:INTegration?

:CALCulate:CHPower:BADNwidth:INTegration?
Channel Power Channel Bandwidth Query

Function
This command queries the channel bandwidth for Channel Power measurement.
Refer to
[:SENSe]:CHPower:BADNwidth:INTegration?.

Related command
This command has the same function as the following command.
[:SENSe]:CHPower:BADNwidth:INTegration?
[:SENSe]:CHPower:FILTer:TYPE RECT|NYQuist|RNYQuist

Channel Power Filter Type

Function

This command sets filter type for Channel Power measurement.

Command

[:SENSe]:CHPower:FILTer:TYPE <filter>

Parameter

<filter>  Filter type
  RECT    Rectangle filter
  NYQuist Nyquist filter
  RNYQuist Root Nyquist filter (Default)

Example of Use

To set the filter type to Nyquist.

CHP:FiLT:TYPE NYQ

Related command

This command has the same function as the following commands.

[:SENSe]:CHPower:FILTer
:CALCulate:CHPower:FILTer:TYPE

:CALCulate:CHPower:FILTer:TYPE RECT|NYQuist|RNYQuist

Channel Power Filter Type

Function

This command sets filter type for Channel Power measurement.

Refer to

[:SENSe]:CHPower:FILTer:TYPE.

Related command

This command has the same function as the following commands.

[:SENSe]:CHPower:FILTer
[:SENSe]:CHPower:FILTer:TYPE
[:SENSe]:CHPower:FILT:TYPE?
Channel Power Filter Type Query

Function
This command queries filter type for Channel Power measurement.

Query
[:SENSe]:CHPower:FILT:TYPE?

Response
<filter>

Parameter
<filter> Filter type
  RECT Rectangle filter
  NYQ Nyquist filter
  RNYQ Root Nyquist filter

Example of Use
To query the filter type.
CHP:FILT:TYPE?
> NYQ

Related command
This command has the same function as the following commands.
[:SENSe]:CHPower:FILT?
:CALCulate:CHPower:FILT:TYPE?

:CALCulate:CHPower:FILT:TYPE?
Channel Power Filter Type Query

Function
This command queries filter type for Channel Power measurement.
Refer to
[:SENSe]:CHPower:FILT:TYPE?.

Related command
This command has the same function as the following commands.
[:SENSe]:CHPower:FILT?
[:SENSe]:CHPower:FILT:TYPE?
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[:SENSe]:CHPower:FILTer[:RRC][:STATe] ON|OFF|1|0
Channel Power Filter Type

Function
This command sets filter type for Channel Power measurement.

Command
[:SENSe]:CHPower:FILTer[:RRC][:STATe] <filter>

Parameter
<filter>  Filter type
0|OFF     Rectangle filter
1|ON      Root Nyquist filter (Default)

Example of Use
To set filter type to Root Nyquist.
CHP:FILT 1

Related command
This command has the same function as the following commands.
[:SENSe]:CHPower:FILTer[:RRC][:STATe]

:CALCulate:CHPower:FILTer[:RRC][:STATe] ON|OFF|1|0
Channel Power Filter Type

Function
This command sets filter type for Channel Power measurement.
Refer to
[:SENSe]:CHPower:FILTer[:RRC][:STATe].

Related command
This command has the same function as the following commands.
[:SENSe]:CHPower:FILTer[:RRC][:STATe]
[:SENSe]:CHPower:FILTer[:RRC][:STATe]
[:SENSe]:CHPower:FILTer[:RRC][:STATe]?
Channel Power Filter Type Query

Function
This command queries filter type for Channel Power measurement.

Query
[:SENSe]:CHPower:FILTer[:RRC][:STATe]?

Response
<filter>

Parameter
<filter> Filter type
0 Rectangle filter
1 Root Nyquist filter

Example of Use
To query the filter type.
CHP:FILT?
> 1

Related command
This command has the same function as the following commands.
[:SENSe]:CHPower:FILTer:TYPE?
:CALCulate:CHPower:FILTer[:RRC][:STATe]?

:CALCulate:CHPower:FILTer[:RRC][:STATe]?
Channel Power Filter Type Query

Function
This command queries filter type for Channel Power measurement. Refer to [:SENSe]:CHPower:FILTer[:RRC][:STATe]?

Related command
This command has the same function as the following commands.
[:SENSe]:CHPower:FILTer:TYPE?
[:SENSe]:CHPower:FILTer[:RRC][:STATe]?
**[:SENSe]:CHPower:FILTer[:RRC]:ALPHa <real>**

**Channel Power Rolloff Ratio**

**Function**

This command sets filter rolloff ratio for Channel Power measurement.

**Command**

[:SENSe]:CHPower:FILTer[:RRC]:ALPHa <real>

**Parameter**

<real>  
Rolloff ratio

Range 0.01 to 1.00
Resolution 0.01
Suffix code None
Default 0.22

**Details**

This command is available when the filter type (Channel Power Filter Type) is set to either of the following:
- Nyquist
- Root Nyquist

**Example of Use**

To set the rolloff ratio to 0.22.

CHP:FILT:ALPH 0.22

**Related command**

This command has the same function as the following command.
[:CALCulate:CHPower:FILTer[:RRC]:ALPHa]

---

**[:CALCulate:CHPower:FILTer[:RRC]:ALPHa <real>**

**Channel Power Rolloff Ratio**

**Function**

This command sets the rolloff ratio for Channel Power measurement. Refer to [:SENSe]:CHPower:FILTer[:RRC]:ALPHa.

**Related command**

This command has the same function as the following command.
[:SENSe]:CHPower:FILTer[:RRC]:ALPHa
[:SENSe]:CHPower:FILTer[:RRC]:ALPHa?

**Channel Power Rolloff Ratio Query**

**Function**

This command queries the rolloff ratio for Channel Power measurement.

**Query**

[:SENSe]:CHPower:FILTer[:RRC]:ALPHa?

**Response**

<real>

**Parameter**

<real>  
Filter rolloff ratio  
Range 0.01 to 1.00  
Resolution 0.01  
Suffix code None  
Default 0.22

**Details**

This function is set when the filter type (Channel Power Filter Type) is set to either of the following:

- Nyquist
- Root Nyquist

**Example of Use**

To query filter rolloff ratio.

CHP:FILT:ALPH?
> 0.22

**Related command**

This command has the same function as the following command.

:CALCulate:CHPower:FILTer[:RRC]:ALPHa?
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:CALCulate:CHPower:FILTer[:RRC]:ALPHA?
Channel Power Rolloff Ratio Query

Function

This command queries the rolloff ratio for Channel Power measurement. Refer to [:SENSe]:CHPower:FILTer[:RRC]:ALPHA?.

Related command

This command has the same function as the following command. [:SENSe]:CHPower:FILTer[:RRC]:ALPHA?

:CONFigure:CHPower
Channel Power Configure

Function

This command sets Channel Power measurement to On.

Command

:CONFigure:CHPower

Details

No measurement is performed.

Example of Use

To set Channel Power measurement to On.
CONF:CHP
:INITiate:CHPower
Channel Power Initiate

Function
This command starts Channel Power measurement.

Command
:INITiate:CHPower

Details
Channel Power measurement is set to On and the measurement starts, when this function is executed.

To read out the measurement results after executing this command, perform the synchronization control using the "*WAI" command.

Example of Use
To start Channel Power measurement.
INIT:CHP
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:FETCh:CHPower[n]?
Channel Power Fetch

Function
This command queries the measurement result for Channel Power measurement.

Query
:FETCh:CHPower[n]?

Response
When the result mode is “A”.
<power>,<density>
(n=1 or when omitted)

When the result mode is “B”.
<power>,<density>
(n=1 or when omitted)
<tracedata_1>,<tracedata_2>,<tracedata_3>,
...
(n=2)

Parameter

<power>  In band total power specified in Channel bandwidth.
Channel bandwidth.
Returns a value without a suffix code and of Log Scale Unit (dBm in V and W in W), when Scale Mode is set to Log.
This command returns –999.0 when no measurement is performed.

<density>  In band power density specified in Channel bandwidth.
This command returns a value without a suffix code and of Log Scale Unit (dBm in V and W in W), when Scale Mode is set to Log.
This command returns –999.0 when no measurement is performed.

<tracedata_m>  Trade data at m point.
No suffix code, dBm unit, 0.001 dB resolution
This command returns –999.0 when no measurement is performed.
Details

This function outputs the measurement result at the Channel Power measurement last performed. It is possible to output the measurement result in a state that the measurement has already been done, and in a different style.

You can use READ command if you perform a measurement along with starting a sweep again.

Return values of this function vary according to the result mode.(cf. :SYSTem:RESult:MODE)

Example of Use

To query the items of the total power and the power density.

FETC:CHP?
> -8.000,-50.000
:FETCh:CHPower:CHPower?

Channel Power Fetch

Function

This command queries the total In Band power for Channel Power measurement.

Query

:FETCh:CHPower:CHPower?

Response

<power>

Parameter

<power>

Total In Band power specified in Channel bandwidth.
This command returns a value without a suffix code and of Log Scale Unit (dBm in V and W in W), when Scale Mode is set to Log.
–999.0 is returned when no measurement is performed.

Details

This function outputs the measurement result at the Channel Power measurement last performed. It is possible to output the measurement result in a state that the measurement has already been done, and in a different style.

You can use READ command if you perform a measurement along with starting a sweep again.

Example of Use

To query the total power.
FETC:CHP:CHP?
> -8.000
:FETCh:CHPower:DENSity?
Channel Power Fetch

Function
This command queries the total In Band power density for Channel Power measurement.

Query
:FETCh:CHPower:DENSity?

Response
<density>

Parameter
<density> In Band power density specified in Channel bandwidth. This command returns a value without a suffix code and of Log Scale Unit (dBm in V and W in W), when Scale Mode is set to Log. –999.0 is returned when no measurement is performed.

Details
This function queries the measurement result at the Channel Power measurement last performed. It is possible to output the measurement result in a state that the measurement has already been done, and in a different style.

You can use READ command if you perform a measurement along with starting a sweep again.

Example of Use
To query the power density.
FETC:CHP:DENS?
> -8.000
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**:READ:CHPower[n]?**
Channel Power Read

**Function**

This command performs the measurement for Channel Power and outputs the measurement result.

It achieves the same result as when commands are sent in the order of:

- :INITiate:CHPower
- :FETCH:CHPower[n]?

**:READ:CHPower:CHPower?**
Channel Power Read

**Function**

This command performs the measurement for Channel Power and outputs the total In Band power.

It achieves the same result as when commands are sent in the order of:

- :INITiate:CHPower
- :FETCH:CHPower:CHPower?

**:READ:CHPower:DENSity?**
Channel Power Read

**Function**

This command performs the measurement for Channel Power and outputs the total In Band power density.

It achieves the same result as when commands are sent in the order of:

- :INITiate:CHPower
- :FETCH:CHPower:DENSity?

**:MEASure:CHPower[n]?**
Channel Power Measure

**Function**

This command performs the measurement for Channel Power and outputs the measurement result.

It achieves the same result as when commands are sent in the order of:

- :CONFigure:CHPower
- :INITiate:CHPower
- :FETCH:CHPower[n]?
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:MEASURE:CHPower:CHPower?
Channel Power Measure

Function
This command performs the measurement for Channel Power and outputs the total In Band power.
It achieves the same result as when commands are sent in the order of:
:CONFigure:CHPower
:INITiate:CHPower
:FETCh:CHPower:CHPower?

:MEASURE:CHPower:DENSity?
Channel Power Measure

Function
This command performs the measurement for Channel Power and outputs the total In Band power density.
It achieves the same result as when commands are sent in the order of:
:CONFigure:CHPower
:INITiate:CHPower
:FETCh:CHPower:DENSity?

:CALCulate:CHPower:MARKer:AOFF
All Marker Off

Function
This command sets all the markers to Off.
Refer to
:CALCulate:MARKer:AOFF.

Related command
This command has the same function as the following commands.
:CALCulate:MARKer:AOFF
:CALCulate:ACPower:MARKer:AOFF
:CALCulate:OBWidth:MARKer:AOFF
:CALCulate:BFOWer|:TXPower:MARKer:AOFF
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**:CALCulate:CHPower:MARKer[1]|2|3|4|5|6|7|8|9|10:MAXimum**

**Peak Search**

*Function*

This command searches for the maximum level point of the active trace and moves the marker point.

Refer to

**:CALCulate:MARKer[1]|2|3|4|5|6|7|8|9|10:MAXimum.**

**Related command**

This command has the same function as the following commands.

**:CALCulate:MARKer[1]|2|3|4|5|6|7|8|9|10:MAXimum**

**:CALCulate:ACPower:MARKer[1]|2|3|4|5|6|7|8|9|10:MAXimum**

**:CALCulate:OBWidth:MARKer[1]|2|3|4|5|6|7|8|9|10:MAXimum**

**:CALCulate:BPOWer|:TXPower:MARKer[1]|2|3|4|5|6|7|8|9|10:MAXimum**

**:CALCulate:CHPower:MARKer[1]|2|3|4|5|6|7|8|9|10:MAXimum:POWer**

**Power Peak Search**

*Function*

This command moves the active marker to the position where the peak power of the zone width of the active marker becomes maximum in the measurement band.

Refer to

**:CALCulate:MARKer[1]|2|3|4|5|6|7|8|9|10:MAXimum:POWer.**

**Related command**

This command has the same function as the following command.

**:CALCulate:MARKer[1]|2|3|4|5|6|7|8|9|10:MAXimum:POWer**

**:CALCulate:ACPower:MARKer[1]|2|3|4|5|6|7|8|9|10:MAXimum:POWer**

**:CALCulate:OBWidth:MARKer[1]|2|3|4|5|6|7|8|9|10:MAXimum:POWer**

**:CALCulate:BPOWer|:TXPower:MARKer[1]|2|3|4|5|6|7|8|9|10:MAXimum:POWer**

**:CALCulate:SPURious:MARKer[1]|2|3|4|5|6|7|8|9|10:MAXimum:POWer**
:CALCulate:CHPower:MARKer[1]|2|3|4|5|6|7|8|9|10:MINimum

Minimum Search

Function

This command searches for the minimum level point of the active trace and moves the marker point to that point.

Refer to

Related Command

This command has the same function as the following command.
:CALCulate:MARKer[1]|2|3|4|5|6|7|8|9|10:MINimum
:CALCulate:ACPower:MARKer[1]|2|3|4|5|6|7|8|9|10:MINimum
:CALCulate:OBWidth:MARKer[1]|2|3|4|5|6|7|8|9|10:MINimum
:CALCulate:BPOWer|:TXPower:MARKer[1]|2|3|4|5|6|7|8|9|10:MINimum
Chapter 2   SCPI Device Message Details

:CALCulate:CHPower:MARKer[1]|2|3|4|5|6|7|8|9|10:MODE
NORMal|POSition|DELTa|FIXed|OFF
Marker Mode

Function

This command sets the marker mode.
Refer to
:CALCulate:MARKer[1]|2|3|4|5|6|7|8|9|10:MODE.

Related command

This command has the same function as the following commands.
:CALCulate:MARKer[1]|2|3|4|5|6|7|8|9|10:MODE
:CALCulate:ACPower:MARKer[1]|2|3|4|5|6|7|8|9|10:MODE
:CALCulate:OBWidth:MARKer[1]|2|3|4|5|6|7|8|9|10:MODE
:CALCulate:BPOWer|:TXPower:MARKer[1]|2|3|4|5|6|7|8|9|10:MODE

:CALCulate:CHPower:MARKer[1]|2|3|4|5|6|7|8|9|10:MODE?
Marker Mode Query

Function

This command queries the marker mode.
Refer to
:CALCulate:MARKer[1]|2|3|4|5|6|7|8|9|10:MODE?.

Related command

This command has the same function as the following commands.
:CALCulate:MARKer[1]|2|3|4|5|6|7|8|9|10:MODE?
:CALCulate:ACPower:MARKer[1]|2|3|4|5|6|7|8|9|10:MODE?
:CALCulate:OBWidth:MARKer[1]|2|3|4|5|6|7|8|9|10:MODE?
:CALCulate:BPOWer|:TXPower:MARKer[1]|2|3|4|5|6|7|8|9|10:MODE?
2.11 Channel Power

:CALCulate:CHPower:MARKer[1]|2|3|4|5|6|7|8|9|10:X <freq>|<time>
Zone Marker Frequency (Time)

Function

This command moves the center of the zone marker to the specified frequency or time.
Refer to
:CALCulate:MARKer[1]|2|3|4|5|6|7|8|9|10:X.

Related command

This command has the same function as the following commands.
:CALCulate:MARKer[1]|2|3|4|5|6|7|8|9|10:X

:CALCulate:CHPower:MARKer[1]|2|3|4|5|6|7|8|9|10:X?
Zone Marker Frequency (Time) Query

Function

This command queries the center of the zone marker.
Refer to
:CALCulate:MARKer[1]|2|3|4|5|6|7|8|9|10:X?.

Related command

This command has the same function as the following commands.
:CALCulate:MARKer[1]|2|3|4|5|6|7|8|9|10:X?
:CALCulate:ACPower:MARKer[1]|2|3|4|5|6|7|8|9|10:X?
:CALCulate:OBWidth:MARKer[1]|2|3|4|5|6|7|8|9|10:X?
:CALCulate:BPOWer|:TXPower:MARKer[1]|2|3|4|5|6|7|8|9|10: X?
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Zone Marker Position

Function

This command moves the center of the zone marker to the specified position.
Refer to

Related command

This command has the same function as the following commands.
:CALCulate:MARKer[1]|2|3|4|5|6|7|8|9|10:X:POSition

Zone Marker Position Query

Function

This command queries the position of the center of the zone marker.
Refer to
:CALCulate:MARKer[1]|2|3|4|5|6|7|8|9|10:X:POSition?.

Related command

This command has the same function as the following commands.
:CALCulate:MARKer[1]|2|3|4|5|6|7|8|9|10:X:POSition?
:CALCulate:OBWidth:MARKer[1]|2|3|4|5|6|7|8|9|10:X:POSition?
2.11 Channel Power

:CALCulate:CHPower:MARKer[1]|2|3|4|5|6|7|8|9|10:Y?

Marker Level Query

Function

This command queries the level at the marker point.
Refer to
:CALCulate:MARKer[1]|2|3|4|5|6|7|8|9|10[:PEAK]:Y?.

Related command

This command has the same function as the following commands.
:CALCulate:MARKer[1]|2|3|4|5|6|7|8|9|10[:PEAK]:Y?
:CALCulate:ACPower:MARKer[1]|2|3|4|5|6|7|8|9|10:Y?
:CALCulate:OBWidth:MARKer[1]|2|3|4|5|6|7|8|9|10:Y?
:CALCulate:SPURious:MARKer[1]|2|3|4|5|6|7|8|9|10:Y?

:DISPlay:CHPower:ANNotation:TITLe:DATA <string>

Title Entry

Function

This command registers the title character string.
Refer to
:DISPlay:ANNotation:TITLe:DATA.

Command

This command has the same function as the following commands.
:DISPlay:ANNotation:TITLe:DATA
:DISPlay:ACPower:ANNotation:TITLe:DATA
:DISPlay:OBWidth:ANNotation:TITLe:DATA
:DISPlay:SEMask:ANNotation:TITLe:DATA
:DISPlay:BPOWer|:TXPower:ANNotation:TITLe:DATA
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:DISPlay:CHPower:ANNotation:TITLe:DATA?
Title Entry Query

Function

This command queries the title character string.
Refer to
:DISPlay:ANNotation:TITLe:DATA?.

Command

This command has the same function as the following commands.
:DISPlay:ANNotation:TITLe:DATA?
:DISPlay:ACPower:ANNotation:TITLe:DATA?
:DISPlay:OBWidth:ANNotation:TITLe:DATA?
:DISPlay:SEMask:ANNotation:TITLe:DATA?
:DISPlay:BPOWer|:TXPower:ANNotation:TITLe:DATA?

:DISPlay:CHPower:VIEW[1]:WINDow[1]:TRACe:Y[:SCALe]:PDIVision
<rel_ampl>
Log Scale Range

Function

This command sets the Y axis scale magnification when Scale Mode is set to Log.
Refer to
:DISPlay:WINDow[1]:TRACe:Y[:SCALe]:[LOGarithmic]:PDIVision.

Related command

This command has the same function as the following commands.
:DISPlay:WINDow[1]:TRACe:Y[:SCALe]:[LOGarithmic]:PDIVision
:DISPlay:ACPower:VIEW[1]:WINDow[1]:TRACe:Y[:SCALe]:PDIVision
:DISPlay:OBWidth:VIEW[1]:WINDow[1]:TRACe:Y[:SCALe]:PDIVision
:DISPlay:SEMask:VIEW[1]:WINDow[1]:TRACe:Y[:SCALe]:PDIVision
:DISPlay:BPOWer|:TXPower:VIEW[1]:WINDow[1]:TRACe:Y[:SCALe]:PDIVision
:DISPlay:CHPower:VIEW[1]:WINDow[1]:TRACe:Y[:SCALe]:PDIVision?

Log Scale Range Query

Function

This command queries the Y axis scale magnification when Scale Mode is set to Log.

Refer to

:DISPlay:WINDow[1]:TRACe:Y[:SCALe]:[LOGarithmic]:PDIVision?.

Related command

This command has the same function as the following commands.

:DISPlay:WINDow[1]:TRACe:Y[:SCALe]:[LOGarithmic]:PDIVision?
:DISPlay:ACPower:VIEW[1]:WINDow[1]:TRACe:Y[:SCALe]:PDIVision?
:DISPlay:OBWidth:VIEW[1]:WINDow[1]:TRACe:Y[:SCALe]:PDIVision?
:DISPlay:SEMask:VIEW[1]:WINDow[1]:TRACe:Y[:SCALe]:PDIVision?
:DISPlay:BPOWer|:TXPower:VIEW[1]:WINDow[1]:TRACe:Y[:SCAL e]:PDIVision?
Chapter 2  SCPI Device Message Details

:DISPlay:CHPower:VIEW[1]:WINDow[1]:TRACe:Y[:SCALe]:RLEVel <real>
Reference Level

Function

This command sets the reference level.
Refer to
:DISPlay:WINDow[1]:TRACe:Y[:SCALe]:RLEVel.

Related command

This command has the same function as the following commands.
:DISPlay:WINDow[1]:TRACe:Y[:SCALe]:RLEVel
:DISPlay:ACPower:VIEW[1]:WINDow[1]:TRACe:Y[:SCALe]:RLEVel
:DISPlay:OBWidth:VIEW[1]:WINDow[1]:TRACe:Y[:SCALe]:RLEVel
:DISPlay:SEMask:VIEW[1]:WINDow[1]:TRACe:Y[:SCALe]:RLEVel
:DISPlay:BPOWer|:TXPower:VIEW[1]:WINDow[1]:TRACe:Y[:SCALe]:RLEVel

:DISPlay:CHPower:VIEW[1]:WINDow[1]:TRACe:Y[:SCALe]:RLEVel?
Reference Level Query

Function

This command queries the reference level.
Refer to
:DISPlay:WINDow[1]:TRACe:Y[:SCALe]:RLEVel?.

Related command

This command has the same function as the following commands.
:DISPlay:WINDow[1]:TRACe:Y[:SCALe]:RLEVel?
:DISPlay:ACPower:VIEW[1]:WINDow[1]:TRACe:Y[:SCALe]:RLEVel?
:DISPlay:OBWidth:VIEW[1]:WINDow[1]:TRACe:Y[:SCALe]:RLEVel?
:DISPlay:SEMask:VIEW[1]:WINDow[1]:TRACe:Y[:SCALe]:RLEVel?
:DISPlay:BPOWer|:TXPower:VIEW[1]:WINDow[1]:TRACe:Y[:SCALe]:RLEVel?
:TRIGger:CHPower[:SEQUence]:SOURce

EXTernal[1]|IMMediate|WIF|RF Burst|VIDeo|SG|BBIF|FRAMe

Trigger Source

Function

This command selects the trigger source.
Refer to
:TRIGger[:SEQUence]:SOURce.

Related command

This command has the same function as the following commands.
:TRIGger[:SEQUence]:SOURce
:TRIGger:ACPower[:SEQUence]:SOURce
:TRIGger:OBWidth[:SEQUence]:SOURce
:TRIGger:SEMask[:SEQUence]:SOURce
:TRIGger:BPOWer|:TXPower[:SEQUence]:SOURce

:TRIGger:CHPower[:SEQUence]:SOURce?

Trigger Source Query

Function

This command queries the trigger source.
Refer to
:TRIGger[:SEQUence]:SOURce?.

Related command

This command has the same function as the following commands.
:TRIGger[:SEQUence]:SOURce?
:TRIGger:ACPower[:SEQUence]:SOURce?
:TRIGger:OBWidth[:SEQUence]:SOURce?
:TRIGger:SEMask[:SEQUence]:SOURce?
:TRIGger:BPOWer|:TXPower[:SEQUence]:SOURce?
Chapter 2  SCPI Device Message Details

[:SENSe]:CHPower:AVERage:COUNt <integer>
Average Count

Function

This command sets the storage count.
Refer to
[:SENSe]:AVERage:COUNt.

Related command

This command has the same function as the following commands.
[:SENSe]:AVERage:COUNt
[:SENSe]:ACPower:AVERage:COUNt
[:SENSe]:OBWidth:AVERage:COUNt
[:SENSe]:SEMask:AVERage:COUNt
[:SENSe]:BPOWer|:TXPower:AVERage:COUNt

[:SENSe]:CHPower:AVERage:COUNt?
Average Count Query

Function

This command queries the storage count.
Refer to
[:SENSe]:AVERage:COUNt?.

Related command

This command has the same function as the following commands.
[:SENSe]:AVERage:COUNt?
[:SENSe]:ACPower:AVERage:COUNt?
[:SENSe]:OBWidth:AVERage:COUNt?
[:SENSe]:SEMask:AVERage:COUNt?
[:SENSe]:BPOWer|:TXPower:AVERage:COUNt?
2.11 Channel Power

[:SENSe]:CHPower:AVERage[:STATe] ON|OFF|1|0

Storage Mode

Function

This command sets the storage mode for Trace A.
Refer to
:TRACe[1]|2|3|4|5|6:STORage:MODE.

Related command

This command has the same function as the following commands.

:TRACe[1]|2|3|4|5|6:STORage:MODE
[:SENSe]:ACPowEr:AVERage[:STATe]
[:SENSe]:OBWidth:AVERage[:STATe]
[:SENSe]:SEMask:AVERage[:STATe]
[:SENSe]:BPOWer|:TXPower:AVERage[:STATe]
[:SENSe]:SPURious:AVERage[:STATe]

[:SENSe]:CHPower:AVERage[:STATe]?

Storage Mode Query

Function

This command queries the storage mode for Trace A.
Refer to
:TRACe[1]|2|3|4|5|6:STORage:MODE?.

Related command

This command has the same function as the following commands.

:TRACe[1]|2|3|4|5|6:STORage:MODE?
[:SENSe]:ACPowEr:AVERage[:STATe]?
[:SENSe]:OBWidth:AVERage[:STATe]?
[:SENSe]:SEMask:AVERage[:STATe]?
[:SENSe]:BPOWer|:TXPower:AVERage[:STATe]?
[:SENSe]:SPURious:AVERage[:STATe]?
Chapter 2  SCPI Device Message Details

[:SENSe]:CHPower:BANDwidth[:RESolution] <freq>
Resolution Bandwidth

Function

This command sets the resolution bandwidth (RBW). Refer to [:SENSe]:BANDwidth|:BWIDth[:RESolution].

Related command

This command has the same function as the following commands.
[:SENSe]:BANDwidth|:BWIDth[:RESolution]
[:SENSe]:ACPower:BANDwidth[:RESolution]
[:SENSe]:CHPower:BANDwidth[:RESolution]
[:SENSe]:OBWidth:BANDwidth[:RESolution]
[:SENSe]:BPOWer|:TXPower:BANDwidth[:RESolution]
:CALCulate:BANDwidth|:BWIDth[:RESolution]
:CALCulate:ACPower:BANDwidth[:RESolution]
:CALCulate:CHPower:BANDwidth[:RESolution]
:CALCulate:OBWidth:BANDwidth[:RESolution]
:CALCulate:BPOWer|:TXPower:BANDwidth[:RESolution]

:CALCulate:CHPower:BANDwidth[:RESolution] <freq>
Resolution Bandwidth

Function

This command sets the resolution bandwidth (RBW). Refer to [:SENSe]:BANDwidth|:BWIDth[:RESolution].

Related command

This command has the same function as the following commands.
[:SENSe]:BANDwidth|:BWIDth[:RESolution]
[:SENSe]:ACPower:BANDwidth[:RESolution]
[:SENSe]:CHPower:BANDwidth[:RESolution]
[:SENSe]:OBWidth:BANDwidth[:RESolution]
[:SENSe]:BPOWer|:TXPower:BANDwidth[:RESolution]
:CALCulate:BANDwidth|:BWIDth[:RESolution]
:CALCulate:ACPower:BANDwidth[:RESolution]
:CALCulate:CHPower:BANDwidth[:RESolution]
:CALCulate:OBWidth:BANDwidth[:RESolution]
:CALCulate:BPOWer|:TXPower:BANDwidth[:RESolution]
[:SENSe]:CHPower:BANDBwidth[:RESo]lution]?  
Resolution Bandwidth Query

Function

This command queries the resolution bandwidth (RBW).
Refer to
[:SENSe]:BANDBwidth[:BWI]dth[:RESolution]?.

Related command

This command has the same function as the following commands.
[:SENSe]:BANDBwidth[:BWI]dth[:RESolution]?
[:SENSe]:ACPower:BANDBwidth[:RESolution]?
[:SENSe]:OBWidth:BANDBwidth[:RESolution]?
[:SENSe]:BPOWer|:TXPower:BANDBwidth[:RESolution]?
:CALCulate:BANDBwidth[:BWI]dth[:RESolution]?
:CALCulate:ACPower:BANDBwidth[:RESolution]?
:CALCulate:OBWidth:BANDBwidth[:RESolution]?
:CALCulate:BPOWer|:TXPower:BANDBwidth[:RESolution]?

:CALCulate:CHPower:BANDBwidth[:RESo]lution]?
Resolution Bandwidth Query

Function

This command queries the resolution bandwidth (RBW).
Refer to
[:SENSe]:BANDBwidth[:BWI]dth[:RESolution]?.

Related command

This command has the same function as the following commands.
[:SENSe]:BANDBwidth[:BWI]dth[:RESolution]?
[:SENSe]:ACPower:BANDBwidth[:RESolution]?
[:SENSe]:CHPower:BANDBwidth[:RESolution]?
[:SENSe]:OBWidth:BANDBwidth[:RESolution]?
[:SENSe]:BPOWer|:TXPower:BANDBwidth[:RESolution]?
:CALCulate:BANDBwidth[:BWI]dth[:RESolution]?
:CALCulate:ACPower:BANDBwidth[:RESolution]?
:CALCulate:OBWidth:BANDBwidth[:RESolution]?
:CALCulate:BPOWer|:TXPower:BANDBwidth[:RESolution]?
[:SENSe]:CHPower:BANDwidth[:RESolution]:AUTO ON|OFF|1|0
Resolution Bandwidth Auto/Manual

Function

This command enables/disables the automatic resolution bandwidth (RBW) setting function.
Refer to [:SENSe]:BANDwidth|:BWIDth[:RESolution]:AUTO.

Related command

This command has the same function as the following commands.
[:SENSe]:BANDwidth|:BWIDth[:RESolution]:AUTO
[:SENSe]:ACPower:BANDwidth[:RESolution]:AUTO
[:SENSe]:OBWidth:BANDwidth[:RESolution]:AUTO
:CALCulate:BANDwidth|:BWIDth[:RESolution]:AUTO
:CALCulate:ACPower:BANDwidth[:RESolution]:AUTO
:CALCulate:CHPower:BANDwidth[:RESolution]:AUTO
:CALCulate:OBWidth:BANDwidth[:RESolution]:AUTO

:CALCulate:CHPower:BANDwidth[:RESolution]:AUTO ON|OFF|1|0
Resolution Bandwidth Auto/Manual

Function

This command sets the resolution bandwidth (RBW) automatically.
Refer to [:SENSe]:BANDwidth|:BWIDth[:RESolution]:AUTO.

Related command

This command has the same function as the following commands.
[:SENSe]:BANDwidth|:BWIDth[:RESolution]:AUTO
[:SENSe]:ACPower:BANDwidth[:RESolution]:AUTO
[:SENSe]:CHPower:BANDwidth[:RESolution]:AUTO
[:SENSe]:OBWidth:BANDwidth[:RESolution]:AUTO
:CALCulate:BANDwidth|:BWIDth[:RESolution]:AUTO
:CALCulate:ACPower:BANDwidth[:RESolution]:AUTO
:CALCulate:OBWidth:BANDwidth[:RESolution]:AUTO
[:SENSe]:CHPower:BANDwidth[:RESolution]:AUTO?
Resolution Bandwidth Auto/Manual Query

Function
This command queries the On/Off state of the automatic resolution bandwidth (RBW).
Refer to
[:SENSe]:BANDwidth|:BWIDth[:RESolution]:AUTO?.

Related command
This command has the same function as the following commands.
[:SENSe]:BANDwidth|:BWIDth[:RESolution]:AUTO?
[:SENSe]:ACPower:BANDwidth[:RESolution]:AUTO?
[:SENSe]:OBWidth:BANDwidth[:RESolution]:AUTO?
:CALCulate:BANDwidth|:BWIDth[:RESolution]:AUTO?
:CALCulate:ACPower:BANDwidth[:RESolution]:AUTO?
:CALCulate:CHPower:BANDwidth[:RESolution]:AUTO?
:CALCulate:OBWidth:BANDwidth[:RESolution]:AUTO?

:CALCulate:CHPower:BANDwidth[:RESolution]:AUTO?
Resolution Bandwidth Auto/Manual Query

Function
This command queries the automatic setting of the resolution bandwidth (RBW).
Refer to
[:SENSe]:BANDwidth|:BWIDth[:RESolution]:AUTO?.

Related command
This command has the same function as the following commands.
[:SENSe]:BANDwidth|:BWIDth[:RESolution]:AUTO?
[:SENSe]:ACPower:BANDwidth[:RESolution]:AUTO?
[:SENSe]:CHPower:BANDwidth[:RESolution]:AUTO?
[:SENSe]:OBWidth:BANDwidth[:RESolution]:AUTO?
:CALCulate:BANDwidth|:BWIDth[:RESolution]:AUTO?
:CALCulate:ACPower:BANDwidth[:RESolution]:AUTO?
:CALCulate:OBWidth:BANDwidth[:RESolution]:AUTO?
[:SENSe]:CHPower:BANDwidth[:RESolution]:MODE NORMal|CISPr
Resolution Bandwidth Normal/CISPR

Function

This command switches the Resolution Bandwidth mode. For details, refer to
[:SENSe]:BANDwidth|:BWIDth[:RESolution]:MODE.

Related Command

This command has the same function as the following commands.
[:SENSe]:ACPower:BANDwidth[:RESolution]:MODE
[:SENSe]:CHPower:BANDwidth[:RESolution]:MODE
[:SENSe]:OBWidth:BANDwidth[:RESolution]:MODE
[:SENSe]:BPOWer|:TXPower:BANDwidth[:RESolution]:MODE
[:CALCulate]:BANDwidth|:BWIDth[:RESolution]:MODE
[:CALCulate]:ACPower:BANDwidth[:RESolution]:MODE
[:CALCulate]:CHPower:BANDwidth[:RESolution]:MODE
[:CALCulate]:OBWidth:BANDwidth[:RESolution]:MODE
[:CALCulate]:BPOWer|:TXPower:BANDwidth[:RESolution]:MODE

[:CALCulate]:CHPower:BANDwidth[:RESolution]:MODE NORMal|CISPr
Resolution Bandwidth Normal/CISPR

Function

This command switches the Resolution Bandwidth mode. For details, refer to
[:SENSe]:BANDwidth|:BWIDth[:RESolution]:MODE.

Related Command

This command has the same function as the following commands.
[:SENSe]:ACPower:BANDwidth[:RESolution]:MODE
[:SENSe]:CHPower:BANDwidth[:RESolution]:MODE
[:SENSe]:OBWidth:BANDwidth[:RESolution]:MODE
[:SENSe]:BPOWer|:TXPower:BANDwidth[:RESolution]:MODE
[:CALCulate]:BANDwidth|:BWIDth[:RESolution]:MODE
[:CALCulate]:ACPower:BANDwidth[:RESolution]:MODE
[:CALCulate]:CHPower:BANDwidth[:RESolution]:MODE
[:CALCulate]:OBWidth:BANDwidth[:RESolution]:MODE
[:CALCulate]:BPOWer|:TXPower:BANDwidth[:RESolution]:MODE
[:SENSe]:CHPower:BANDwidth[:RESolution]:MODE?
Resolution Bandwidth Normal/CISPR Query

Function

This command queries the Resolution Bandwidth mode.
For details, refer to
[:SENSe]:BANDwidth|:BWIDth[:RESolution]:MODE?.

Related Command

This command has the same function as the following commands.
[:SENSe]:ACPower:BANDwidth[:RESolution]:MODE
[:SENSe]:CHPower:BANDwidth[:RESolution]:MODE
[:SENSe]:OBWidth:BANDwidth[:RESolution]:MODE
[:SENSe]:BPOWer|:TXPower:BANDwidth[:RESolution]:MODE
:CALCulate:BANDwidth|:BWIDth[:RESolution]:MODE
:CALCulate:ACPower:BANDwidth[:RESolution]:MODE
:CALCulate:CHPower:BANDwidth[:RESolution]:MODE
:CALCulate:OBWidth:BANDwidth[:RESolution]:MODE
:CALCulate:BPOWer|:TXPower:BANDwidth[:RESolution]:MODE

:CALCulate:CHPower:BANDwidth[:RESolution]:MODE?
Resolution Bandwidth Normal/CISPR Query

Function

This command queries the Resolution Bandwidth mode.
For details, refer to
[:SENSe]:BANDwidth|:BWIDth[:RESolution]:MODE?.

Related Command

This command has the same function as the following commands.
[:SENSe]:ACPower:BANDwidth[:RESolution]:MODE
[:SENSe]:CHPower:BANDwidth[:RESolution]:MODE
[:SENSe]:OBWidth:BANDwidth[:RESolution]:MODE
[:SENSe]:BPOWer|:TXPower:BANDwidth[:RESolution]:MODE
:CALCulate:BANDwidth|:BWIDth[:RESolution]:MODE
:CALCulate:ACPower:BANDwidth[:RESolution]:MODE
:CALCulate:CHPower:BANDwidth[:RESolution]:MODE
:CALCulate:OBWidth:BANDwidth[:RESolution]:MODE
:CALCulate:BPOWer|:TXPower:BANDwidth[:RESolution]:MODE
[:SENSe]:CHPower:BANDwidth:VIDeo <freq>

**Video Bandwidth**

**Function**

This command sets the video bandwidth (VBW). Refer to [:SENSe]:BANDwidth|:BWIDth:VIDeo.

**Related command**

This command has the same function as the following commands.

[:SENSe]:BANDwidth|:BWIDth:VIDeo
[:SENSe]:ACPower:BANDwidth:VIDeo
[:SENSe]:OBWidth:BANDwidth:VIDeo

[:SENSe]:CHPower:BANDwidth:VIDeo?

**Video Bandwidth Query**

**Function**

This command queries the video bandwidth (VBW). Refer to [:SENSe]:BANDwidth|:BWIDth:VIDeo?.

**Related command**

This command has the same function as the following commands.

[:SENSe]:BANDwidth|:BWIDth:VIDeo?
[:SENSe]:ACPower:BANDwidth:VIDeo?
[:SENSe]:OBWidth:BANDwidth:VIDeo?
2.11 Channel Power

[:SENSe]:CHPower:BANDwidth:VIDeo:AUTO OFF|ON|0|1
Video Bandwidth Auto/Manual

Function

This command enables/disables the automatic video bandwidth (VBW) setting function.
Refer to [:SENSe]:BANDwidth|:BWIDth:VIDeo:AUTO.

Related command

This command has the same function as the following commands.
[:SENSe]:BANDwidth|:BWIDth:VIDeo:AUTO
[:SENSe]:ACPower:BANDwidth:VIDeo:AUTO
[:SENSe]:OBWidth:BANDwidth:VIDeo:AUTO

[:SENSe]:CHPower:BANDwidth:VIDeo:AUTO?
Video Bandwidth Auto/Manual Query

Function

This command queries the On/Off state of the automatic video bandwidth (VBW) setting.
Refer to [:SENSe]:BANDwidth|:BWIDth:VIDeo:AUTO?.

Related command

This command has the same function as the following commands.
[:SENSe]:BANDwidth|:BWIDth:VIDeo:AUTO?
[:SENSe]:ACPower:BANDwidth:VIDeo:AUTO?
[:SENSe]:OBWidth:BANDwidth:VIDeo:AUTO?
[:SENSe]:CHPower:DETo[ector[:FUNClon]]
NORMal|POSitive|SAMPle|NEGative|RMS|QPEak|CAVerage|CRMS
Detection Mode

Function

This command selects the detection mode of the waveform pattern.
Refer to
[:SENSe]:DETo[ector[:FUNClon]].

Related command

This command has the same function as the following commands.
[:SENSe]:DETo[ector[:FUNClon]]
[:SENSe]:ACPower:DETo[ector[:FUNClon]]
[:SENSe]:OBWidth:DETo[ector[:FUNClon]]
:CALCulate:ACPower:DETo[ector[:FUNClon]]
:CALCulate:CHPower:DETo[ector[:FUNClon]]
:CALCulate:OBWidth:DETo[ector[:FUNClon]]
[:SENSe]:CHPower:DETrector[:FUNClonent]?
Detection Mode Query

Function

This command queries the detection mode of the waveform pattern.
Refer to
[:SENSe]:DETrector[:FUNClonent]?.

Related command

This command has the same function as the following commands.
[:SENSe]:DETrector[:FUNClonent]?
[:SENSe]:ACPower:DETrector[:FUNClonent]?
[:SENSe]:OBWidth:DETrector[:FUNClonent]?
[:SENSe]:SEMsk:DETrector:CARRier[:FUNClonent]?
:CALCulate:DETrector[:FUNClonent]?
:CALCulate:ACPower:DETrector[:FUNClonent]?
:CALCulate:CHPower:DETrector[:FUNClonent]?
:CALCulate:OBWidth:DETrector[:FUNClonent]?
[:SENSe]:CHPower:FREQuency:SPAN <freq>
Frequency Span

Function
This command sets the frequency span.
Refer to
[:SENSe]:FREQuency:SPAN.

Related command
This command has the same function as the following commands.
[:SENSe]:FREQuency:SPAN
[:SENSe]:ACPower:FREQuency:SPAN
[:SENSe]:OBWidth:FREQuency:SPAN

[:SENSe]:CHPower:FREQuency:SPAN?
Frequency Span Query

Function
This command queries the frequency span.
Refer to
[:SENSe]:FREQuency:SPAN?.

Related command
This command has the same function as the following commands.
[:SENSe]:FREQuency:SPAN?
[:SENSe]:ACPower:FREQuency:SPAN?
[:SENSe]:OBWidth:FREQuency:SPAN?

[:SENSe]:CHPower:FREQuency:SPAN:FULL
Full Span

Function
This command maximizes the frequency span.
Refer to
[:SENSe]:FREQuency:SPAN:FULL.

Related command
This command has the same function as the following commands.
[:SENSe]:FREQuency:SPAN:FULL
[:SENSe]:ACPower:FREQuency:SPAN:FULL
[:SENSe]:OBWidth:FREQuency:SPAN:FULL
[:SENSe]:CHPower:SWEep:POINts <integer>
Trace Point

Function

This command sets the number of the trace display points. 
Refer to [:SENSe]:SWEep:POINts.

Related command

This command has the same function as the following commands. 
[:SENSe]:SWEep:POINts 
[:SENSe]:ACPower:SWEep:POINts 
[:SENSe]:OBWidth:SWEep:POINts

[:SENSe]:CHPower:SWEep:POINts?
Trace Point Query

Function

This command queries the number of the trace display points. 
Refer to [:SENSe]:SWEep:POINts?.

Related command

This command has the same function as the following commands. 
[:SENSe]:SWEep:POINts? 
[:SENSe]:ACPower:SWEep:POINts? 
[:SENSe]:OBWidth:SWEep:POINts?

[:SENSe]:CHPower:SWEep:TIME <time>
Sweep Time

Function

This command sets the sweep time. 
Refer to [:SENSe]:SWEep:TIME.

Related command

This command has the same function as the following commands. 
[:SENSe]:SWEep:TIME 
[:SENSe]:ACPower:SWEep:TIME 
[:SENSe]:OBWidth:SWEep:TIME 
[:SENSe]:BFOWer|:TXPower:SWEep:TIME
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[:SENSe]:CHPower:SWEep:TIME?
Sweep Time Query

Function

This command queries the sweep time.
Refer to
[:SENSe]:SWEep:TIME?.

Related command

This command has the same function as the following commands.
[:SENSe]:SWEep:TIME?
[:SENSe]:ACPower:SWEep:TIME?
[:SENSe]:OBWidth:SWEep:TIME?
[:SENSe]:BPOWer|:TXPower:SWEep:TIME?

[:SENSe]:CHPower:SWEep:TIME:AUTO OFF|ON|0|1
Sweep Time Auto/Manual

Function

This command enables/disable the automatic sweep time setting function.
Refer to
[:SENSe]:SWEep:TIME:AUTO.

Related command

This command has the same function as the following commands.
[:SENSe]:SWEep:TIME:AUTO
[:SENSe]:ACPower:SWEep:TIME:AUTO
[:SENSe]:OBWidth:SWEep:TIME:AUTO
[:SENSe]:CHPower:SWEep:TIME:AUTO?

Sweep Time Auto/Manual Query

Function

This command queries the On/Off state of the automatic sweep time setting.
Refer to [:SENSe]:SWEep:TIME:AUTO?.

Related command

This command has the same function as the following commands.
[:SENSe]:SWEep:TIME:AUTO?
[:SENSe]:ACPower:SWEep:TIME:AUTO?
[:SENSe]:OBWidth:SWEep:TIME:AUTO?

:CALCulate:CHPower:MARKer[1]|2|3|4|5|6|7|8|9|10:REFerence <integer>

Relative To

Function

This command sets the reference marker when the marker mode is set to Delta.
Refer to :CALCulate:MARKer[1]|2|3|4|5|6|7|8|9|10:REFerence.

Related command

This command has the same function as the following commands.
:CALCulate:MARKer[1]|2|3|4|5|6|7|8|9|10:REFerence
:CALCulate:ACPower:MARKer[1]|2|3|4|5|6|7|8|9|10:REFerence
:CALCulate:OBWidth:MARKer[1]|2|3|4|5|6|7|8|9|10:REFerence

:CALCulate:CHPower:MARKer[1]|2|3|4|5|6|7|8|9|10:REFerence?

Relative To

Function

This command queries the reference marker when the marker mode is set to Delta.
Refer to :CALCulate:MARKer[1]|2|3|4|5|6|7|8|9|10:REFerence?
This command has the same function as the following commands.

:CALCulate:MARKer[1]|2|3|4|5|6|7|8|9|10:REFerence?
:CALCulate:ACPower:MARKer[1]|2|3|4|5|6|7|8|9|10:REFerence?
:CALCulate:OBWidth:MARKer[1]|2|3|4|5|6|7|8|9|10:REFerence?
Table 2.12-1 lists device messages for occupied bandwidth measurement.

<table>
<thead>
<tr>
<th>Function</th>
<th>Device Message</th>
</tr>
</thead>
</table>
| Measure Occupied Bandwidth        | [:SENSe]:OBWidth[:STATe] ON|OFF|1|0  
|                                   | [:SENSe]:OBWidth[:STATe]?                                                    |
|                                   | :CALCulate:OBWidth[:STATe] ON|OFF|1|0  
|                                   | :CALCulate:OBWidth[:STATe]?                                                  |
| OBW Method                        | [:SENSe]:OBWidth:METHOD NPERcent|XDB                                     |
|                                   | [:SENSe]:OBWidth:METHOD?                                                      |
|                                   | :CALCulate:OBWidth:METHOD NPERcent|XDB                                     |
|                                   | :CALCulate:OBWidth:METHOD?                                                    |
| OBW N% Ratio                      | [:SENSe]:OBWidth:PERCent <real>                                               |
|                                   | [:SENSe]:OBWidth:PERCent?                                                     |
|                                   | :CALCulate:OBWidth:PERCent <real>                                             |
|                                   | :CALCulate:OBWidth:PERCent?                                                   |
| OBW X dB Value                    | [:SENSe]:OBWidth:XDB <rel_ampl>                                               |
|                                   | [:SENSe]:OBWidth:XDB?                                                         |
|                                   | :CALCulate:OBWidth:XDB <rel_ampl>                                             |
|                                   | :CALCulate:OBWidth:XDB?                                                       |
| Occupied Bandwidth Configure     | :CONFigure:OBWidth                                                           |
| Occupied Bandwidth Initiate       | :INITiate:OBWidth                                                            |
| Occupied Bandwidth Fetch          | :FETCh:OBWidth[n]?                                                           |
|                                   | :FETCh:OBWidth:FERRor?                                                        |
| Occupied Bandwidth Read           | :READ:OBWidth[n]?                                                            |
|                                   | :READ:OBWidth:FERRor?                                                         |
| Occupied Bandwidth Measure        | :MEASURE:OBWidth[n]?                                                         |
|                                   | :MEASURE:OBWidth:FERRor?                                                      |
| All Marker Off                    | :CALCulate:OBWidth:MARKer:AOFF                                               |
| Peak Search                       | :CALCulate:OBWidth:MARKer[1]|2|3|4|5|6|7|8|9|10:MAXimum                        |
### Table 2.12-1  Device Messages for Occupied Bandwidth measurement (Cont'd)

<table>
<thead>
<tr>
<th>Function</th>
<th>Device Message</th>
</tr>
</thead>
<tbody>
<tr>
<td></td>
<td>:CALCulate:OBWidth:MARKer[1]</td>
</tr>
<tr>
<td>Zone Marker Frequency (Time)</td>
<td>:CALCulate:OBWidth:MARKer[1]</td>
</tr>
<tr>
<td></td>
<td>:CALCulate:OBWidth:MARKer[1]</td>
</tr>
<tr>
<td>Title Entry</td>
<td>:DISPlay:OBWidth:ANNotation:TITLe:DATA &lt;string&gt;</td>
</tr>
<tr>
<td></td>
<td>:DISPlay:OBWidth:ANNotation:TITLe:DATA?</td>
</tr>
<tr>
<td>Log Scale Range</td>
<td>:DISPlay:OBWidth:VIEW[1]:WINDow[1]:TRACe:Y[:SCALe]:PDIvision &lt;rel_ampl&gt;</td>
</tr>
<tr>
<td>Reference Level</td>
<td>:DISPlay:OBWidth:VIEW[1]:WINDow[1]:TRACe:Y[:SCALe]:RLEvel &lt;real&gt;</td>
</tr>
<tr>
<td></td>
<td>:DISPlay:OBWidth:VIEW[1]:WINDow[1]:TRACe:Y[:SCALe]:RLEvel?</td>
</tr>
<tr>
<td>Trigger Source</td>
<td>:TRIGger:OBWidth[:SEQuence]:SOURce EXTernal [1]</td>
</tr>
<tr>
<td></td>
<td>:TRIGger:OBWidth[:SEQuence]:SOURce?</td>
</tr>
<tr>
<td>Average Count</td>
<td>[:SENSe]:OBWidth:AVERage:COUNt &lt;integer&gt;</td>
</tr>
<tr>
<td></td>
<td>[:SENSe]:OBWidth:AVERage:COUNt?</td>
</tr>
<tr>
<td>Storage Mode</td>
<td>[:SENSe]:OBWidth:AVERage[:STATe] ON</td>
</tr>
<tr>
<td></td>
<td>[:SENSe]:OBWidth:AVERage[:STATe]?</td>
</tr>
<tr>
<td>Resolution Bandwidth</td>
<td>[:SENSe]:OBWidth:BANDwidth[:RESolution] &lt;freq&gt;</td>
</tr>
<tr>
<td></td>
<td>[:SENSe]:OBWidth:BANDwidth[:RESolution]?</td>
</tr>
<tr>
<td></td>
<td>:CALCulate:OBWidth:BANDwidth[:RESolution] &lt;freq&gt;</td>
</tr>
<tr>
<td></td>
<td>:CALCulate:OBWidth:BANDwidth[:RESolution]?</td>
</tr>
<tr>
<td>Resolution Bandwidth Auto/Manual</td>
<td>[:SENSe]:OBWidth:BANDwidth[:RESolution]:AUTO ON</td>
</tr>
<tr>
<td></td>
<td>[:SENSe]:OBWidth:BANDwidth[:RESolution]:AUTO?</td>
</tr>
<tr>
<td></td>
<td>:CALCulate:OBWidth:BANDwidth[:RESolution]:AUTO ON</td>
</tr>
<tr>
<td></td>
<td>:CALCulate:OBWidth:BANDwidth[:RESolution]:AUTO?</td>
</tr>
<tr>
<td>Resolution Bandwidth Normal/CISPR</td>
<td>[:SENSe]:OBWidth:BANDwidth[:RESolution]:MODE NORMal</td>
</tr>
<tr>
<td></td>
<td>[:SENSe]:OBWidth:BANDwidth[:RESolution]:MODE?</td>
</tr>
<tr>
<td></td>
<td>:CALCulate:OBWidth:BANDwidth[:RESolution]:MODE NORMal</td>
</tr>
<tr>
<td></td>
<td>:CALCulate:OBWidth:BANDwidth[:RESolution]:MODE?</td>
</tr>
</tbody>
</table>
Table 2.12-1  Device Messages for Occupied Bandwidth measurement (Cont’d)

<table>
<thead>
<tr>
<th>Function</th>
<th>Device Message</th>
</tr>
</thead>
<tbody>
<tr>
<td>Video Bandwidth</td>
<td>[:SENSe]:OBWidth:BANDwidth:VIDeo &lt;freq&gt;</td>
</tr>
<tr>
<td></td>
<td>[:SENSe]:OBWidth:BANDwidth:VIDeo?</td>
</tr>
<tr>
<td>Video Bandwidth Auto/Manual</td>
<td>[:SENSe]:OBWidth:BANDwidth:VIDeo:AUTO OFF</td>
</tr>
<tr>
<td></td>
<td>[:SENSe]:OBWidth:BANDwidth:VIDeo:AUTO?</td>
</tr>
<tr>
<td>Detection Mode</td>
<td>[:SENSe]:OBWidth:DETector[:FUNCTION] NORMal</td>
</tr>
<tr>
<td></td>
<td>[:SENSe]:OBWidth:DETector[:FUNCTION]?</td>
</tr>
<tr>
<td></td>
<td>:CALCulate:OBWidth:DETector[:FUNCTION] NORMal</td>
</tr>
<tr>
<td></td>
<td>:CALCulate:OBWidth:DETector[:FUNCTION]?</td>
</tr>
<tr>
<td>Frequency Span</td>
<td>[:SENSe]:OBWidth:FREQuency:SPAN &lt;freq&gt;</td>
</tr>
<tr>
<td></td>
<td>[:SENSe]:OBWidth:FREQuency:SPAN?</td>
</tr>
<tr>
<td>Full Span</td>
<td>[:SENSe]:OBWidth:FREQuency:SPAN:FULL</td>
</tr>
<tr>
<td>Trace Point</td>
<td>[:SENSe]:OBWidth:SWEep:POINts &lt;integer&gt;</td>
</tr>
<tr>
<td></td>
<td>[:SENSe]:OBWidth:SWEep:POINts?</td>
</tr>
<tr>
<td>Sweep Time</td>
<td>[:SENSe]:OBWidth:SWEep:TIME &lt;time&gt;</td>
</tr>
<tr>
<td></td>
<td>[:SENSe]:OBWidth:SWEep:TIME?</td>
</tr>
<tr>
<td>Sweep Time Auto/Manual</td>
<td>[:SENSe]:OBWidth:SWEep:TIME:AUTO OFF</td>
</tr>
<tr>
<td></td>
<td>[:SENSe]:OBWidth:SWEep:TIME:AUTO?</td>
</tr>
<tr>
<td>Relative To</td>
<td>:CALCulate:OBWidth:MARKer[1]</td>
</tr>
<tr>
<td></td>
<td>:CALCulate:OBWidth:MARKer[1]</td>
</tr>
</tbody>
</table>
[SENSe]:OBWidth[:STATe] ON|OFF|1|0
Measure Occupied Bandwidth

Function
This command executes Occupied Bandwidth measurement.

Command
[SENSe]:OBWidth[:STATe] <switch>

Parameter
<switch>          OBW measurement On/Off
ON|1               Sets OBW measurement to On.
OFF|0               Sets OBW measurement to Off.

Example of Use
To set OBW measurement to On.
OBW ON

Related command
This command has the same function as the following command.
:CALCulate:OBWidth[:STATe] ON|OFF|1|0

[SENSe]:OBWidth[:STATe]?
Measure Occupied Bandwidth Query

Function
This command queries the On/Off state of the Occupied Bandwidth measurement setting.

Command
[SENSe]:OBWidth[:STATe]?

Parameter
<switch>          OBW measurement On/Off
1                 On
0                 Off

Example of Use
To query the On/Off state of the OBW measurement setting.
OBW?
> 1
Related command

This command has the same function as the following command.

`:CALCulate:OBWidth[:STATe]?`

`:CALCulate:OBWidth[:STATe] ON|OFF|1|0

Measure Occupied Bandwidth

Function

This command executes Occupied Bandwidth measurement. Refer to `[:SENSe]:OBWidth[:STATe]`.

Related command

This command has the same function as the following command.

`[:SENSe]:OBWidth[:STATe] ON|OFF|1|0`

`:CALCulate:OBWidth[:STATe]?`

Measure Occupied Bandwidth Query

Function

This command queries the setting of Occupied Bandwidth measurement. Refer to `[:SENSe]:OBWidth[:STATe]`.

Related command

This command has the same function as the following command.

`[:SENSe]:OBWidth[:STATe]`
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[:SENSe]:OBWidth:METHOD NPERcent|XDB

OBW Method

Function

This command sets the Occupied Bandwidth measurement method.

Command

[:SENSe]:OBWidth:METHOD <method>

Parameter

<method>  
NPERcent  N% method (Default)
XDB       X dB Down method

Example of Use

To set the Occupied Bandwidth measurement method to X dB Down.

OBW:METH XDB

Related command

This command has the same function as the following command.

:CALCulate:OBWidth:METHOD NPERcent|XDB

 [:SENSe]:OBWidth:METHOD?

OBW Method Query

Function

This command queries the measurement method for Occupied Bandwidth measurement.

Query

[:SENSe]:OBWidth:METHOD?

Response

<method>

Parameter

<method>  
NPER      N% method
XDB       X dB Down method
Example of Use

To query the measurement method for Occupied Bandwidth measurement.

```
OBW:METH?
> XDB
```

Related command

This command has the same function as the following command.

```
:CALCulate:OBWidth:METHod?
```

:`CALCulate:OBWidth:METHod NPERcent|XDB`

OBW Method

Function

This command sets the measurement method for Occupied Bandwidth measurement.
Refer to

```
[:SENSe]:OBWidth:METHod.
```

Related command

This command has the same function as the following command.

```
[:SENSe]:OBWidth:METHod NPERcent|XDB
```

:`CALCulate:OBWidth:METHod?`

OBW Method Query

Function

This command queries the measurement method for Occupied Bandwidth measurement.
Refer to

```
[:SENSe]:OBWidth:METHod?.
```

Related command

This command has the same function as the following command.

```
[:SENSe]:OBWidth:METHod?
```
[:SENSe]:OBWidth:PERCent <real>

OBW N% Ratio

Function

This command sets the Occupied Frequency Bandwidth (N% method) condition.

Command

[:SENSe]:OBWidth:PERCent <real>

Parameter

<real> N%
Range 0.01 to 99.99 %
Resolution 0.01
Suffix code None
Default 99.00%

Example of Use

To set to 12.34%.
OBW:PERC 12.34

Related command

This command has the same function as the following command.
:CALCulate:OBWidth:PERCent
[:SENSe]:OBWidth:PERCent?

OBW N% Ratio Query

Function

This command queries the Occupied Frequency Bandwidth (N% method) condition.

Query

[:SENSe]:OBWidth:PERCent?

Response

<real>

Parameter

<real>  
N%

Range  0.01 to 99.99 %

Resolution  0.01

Suffix code  None. Value is returned in % units.

Example of Use

To query the Occupied Frequency Bandwidth (N% method) condition.

OBW:PERC?

> 12.34

Related command

This command has the same function as the following command.

:CALCulate:OBWidth:PERCent?
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:CALCulate:OBWidth:PERCent <real>

OBW N% Ratio

Function

This command sets the Occupied Frequency Bandwidth (N% method) condition.
Refer to [:SENSe]:OBWidth:PERCent.

Related command

This command has the same function as the following command.
[:SENSe]:OBWidth:PERCent

:CALCulate:OBWidth:PERCent?

OBW N% Ratio Query

Function

This command queries the Occupied Frequency Bandwidth (N% method) condition.
Refer to [:SENSe]:OBWidth:PERCent?.

Related command

This command has the same function as the following command.
[:SENSe]:OBWidth:PERCent?
[:SENSe]:OBWidth:XDB <rel_ampl>

OBW X dB Value

Function

This command sets the Occupied Frequency Bandwidth (X dB) condition.

Command

[:SENSe]:OBWidth:XDB <rel_ampl>

Parameter

<rel_ampl> X dB
Range 0.01 to 100.00 dB
Resolution 0.01 dB
Suffix code DB
dB is used even when omitted.
Default 25.00 dB

Example of Use

To set the X dB condition to 12.34 dB.
OBW:XDB 12.34

Related command

This command has the same function as the following command.
:CALCulate:OBWidth:XDB
[:SENSe]:OBWidth:XDB?
OBW X dB Value Query

Function

This command queries the Occupied Frequency Bandwidth (X dB) condition.

Query

[:SENSe]:OBWidth:XDB?

Response

<rel_ampl>

Parameter

<rel_ampl> X dB
Range 0.01 to 100.00 dB
Resolution 0.01 dB
Suffix code None. Value is returned in dB units.
Default 25.00 dB

Example of Use

To query the Occupied Frequency Bandwidth (X dB) condition.

OBW:XDB?

> 12.34

Related command

This command has the same function as the following command.

:CALCulate:OBWidth:XDB?
:CALCulate:OBWidth:XDB <rel_ampl>
OBW X dB Value

Function
This command sets the Occupied Frequency Bandwidth (X dB) condition. Refer to [:SENSe]:OBWidth:XDB.

Related command
This command has the same function as the following command. [:SENSe]:OBWidth:XDB

:CALCulate:OBWidth:XDB?
OBW X dB Value Query

Function
This command queries the Occupied Frequency Bandwidth (X dB) condition. Refer to [:SENSe]:OBWidth:XDB?.

Related command
This command has the same function as the following command. [:SENSe]:OBWidth:XDB?
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:CONFigure:OBWidth
Occupied Bandwidth Configure

Function
This command sets OBW measurement to On.

Command
:CONFigure:OBWidth

Details
No measurement is performed.

Example of Use
To set OBW measurement to On.
CONF:OBW

:INITiate:OBWidth
Occupied Bandwidth Initiate

Function
This command starts OBW measurement.

Command
:INITiate:OBWidth

Details
OBW measurement is set to On and the measurement starts, when this function is executed.
To read out the measurement results after executing this command, perform the synchronization control using the “*WAI” command.

Example of Use
To initiate OBW measurement.
INIT:OBW
:FETCH:OBWidth[n]?

Occupied Bandwidth Fetch

Function

This command outputs the measurement result of OBW measurement.

Query

:FETCH:OBWidth[n]?

Response

When the result mode is “A”.

\(<obw>,<center>,<start>,<stop>\)

(n=1 or when omitted)

When the result mode is “B”.

\(<obw_nper>,-999.0,<span>,<trace_point>,<rbw>,<freq_error>,<obw_xdb>\)

(n=1 or when omitted)

\(<tracedata_1>,<tracedata_2>,<tracedata_3>,\ldots\)

(n=2)

Parameter

- \(<span>\) Frequency Span setting value
- \(<freq_error>\) Difference between the center frequency of Occupied Bandwidth and the center frequency.
- \(<rbw>\) RBW setting value
- \(<obw>\) Occupied Bandwidth
- \(<obw_nper>\) Occupied Bandwidth (N % method)
  "–999999999999" is returned, when OBW Method is X dB.
- \(<obw_xdb>\) Occupied Bandwidth (X dB method)
  "–999999999999" is returned, when OBW Method is N%.
- \(<center>\) Center frequency of Occupied Bandwidth
- \(<start>\) Lower frequency of Occupied Bandwidth
- \(<stop>\) Upper frequency of Occupied Bandwidth

Suffix code

None. Hz units, 1 Hz resolution

"–999999999999" is returned when an error occurs / no measurement is performed.
<trace_point> Trace point number
Suffix code None. “−999.0” is returned when no measurement is executed.

Details

This function outputs the measurement result of the OBW measurement performed last. It is possible to output the measurement result in a state that the measurement has already been done, and in a different style. You can use the READ command if you perform a measurement along with starting the sweep again.

Return values of this function vary according to the result mode.(cf. `:SYSTem:RESult:MODE`)

Example of Use

To obtain the measurement result of OBW measurement. (n=1)
FETC:OBW?
> 30000,1000000000,900050000,1000050000
:FETCh:OBWidth:FERRor?
Occupied Bandwidth Fetch

Function
This command outputs the difference between the center frequency of occupied bandwidth of OBW measurement and the center frequency.

Query
:FETCh:OBWidth:FERRor?

Response
<freq_error>

Parameter
.freq_error> Difference between the center frequency of occupied bandwidth and the center frequency.

Suffix code
None. Hz units, 1 Hz resolution
“–999999999999” is returned when an error occurs /no measurement is performed.

Details
This function outputs the measurement result of the OBW measurement last performed. It is possible to output the measurement result in a state that the measurement has already been done, and in a different style. You can use READ command if you perform a measurement along with starting the sweep again.

Example of Use
To obtain the difference between the center frequency of occupied bandwidth of OBW measurement and the center frequency.
FETC:OBW:FERR?
> 30000
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:READ:OBWidth[n]?
Occupied Bandwidth Read

Function

This command performs the OBW measurement and outputs the measurement result.
It achieves the same result as when commands are sent in the order of
:INITiate:OBWidth
:FETCh:OBWidth[n]?

:READ:OBWidth:FERRor?
Occupied Bandwidth Read

Function

This command performs the OBW measurement of OBW and outputs the difference between the center frequency of Occupied Bandwidth and the center frequency.
It achieves the same result as when commands are sent in the order of
:INITiate:OBWidth
:FETCh:OBWidth:FERRor?

:MEASure:OBWidth[n]?
Occupied Bandwidth Measure

Function

This command performs the OBW measurement and outputs the measurement result.
It achieves the same result as when commands are sent in the order of
:CONFigure:OBWidth
:INITiate:OBWidth
:FETCh:OBWidth[n]?
:MEASure:OBWidth:FERRor?
Occupied Bandwidth Measure

Function

This command performs the measurement of OBW and outputs the difference between the center frequency of Occupied Bandwidth and the center frequency.
It achieves the same result as when commands are sent in the order of
:CONFigure:OBWidth
:INITiate:OBWidth
:FETCh:OBWidth:FERRor?

:CALCulate:OBWidth:MARKer:AOFF
All Marker Off

Function

This command sets all the markers to Off.
Refer to
:CALCulate:MARKer:AOFF.

Related command

This command has the same function as the following commands.
:CALCulate:MARKer:AOFF
:CALCulate:ACPower:MARKer:AOFF
:CALCulate:CHPower:MARKer:AOFF
:CALCulate:BFOWer|:TXPower:MARKer:AOFF
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:CALCulate:OBWidth:MARKer[1]|2|3|4|5|6|7|8|9|10:MAXimum

Peak Search

Function

This command searches for the maximum level point of the active trace and moves the marker point.

Refer to


Related command

This command has the same function as the following commands.

:CALCulate:ACPower:MARKer[1]|2|3|4|5|6|7|8|9|10:MAXimum
:CALCulate:CHPower:MARKer[1]|2|3|4|5|6|7|8|9|10:MAXimum
:CALCulate:BPOWer|:TXPower:MARKer[1]|2|3|4|5|6|7|8|9|10:MAXimum

:CALCulate:OBWidth:MARKer[1]|2|3|4|5|6|7|8|9|10:MAXimum:POWer

Power Peak Search

Function

This command moves the active marker to the position where the peak power of the zone width of the active marker becomes maximum in the measurement band.

Refer to


Related command

This command has the same function as the following command.

:CALCulate:MARKer[1]|2|3|4|5|6|7|8|9|10:MAXimum:POWer
:CALCulate:CHPower:MARKer[1]|2|3|4|5|6|7|8|9|10:MAXimum:POWer
:CALCulate:SPURious:MARKer[1]|2|3|4|5|6|7|8|9|10:MAXimum:POWer
Minimum Search Function

This command searches for the minimum level point of the active trace and moves the marker point to that point. Refer to :


Related Command

This command has the same function as the following commands:

:CALCulate:MARKer[1]|2|3|4|5|6|7|8|9|10:MINimum
:CALCulate:ACPower:MARKer[1]|2|3|4|5|6|7|8|9|10:MINimum
:CALCulate:CHPower:MARKer[1]|2|3|4|5|6|7|8|9|10:MINimum
:CALCulate:BPOWER|TXPower:MARKer[1]|2|3|4|5|6|7|8|9|10:MINimum
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:CALCulate:OBWidth:MARKer[1]|2|3|4|5|6|7|8|9|10:MODE
NORMAL|POSITION|DELTA|FIXed|OFF
Marker Mode

Function

This command sets the marker mode.
Refer to
:CALCulate:MARKer[1]|2|3|4|5|6|7|8|9|10:MODE.

Related command

This command has the same function as the following commands.
:CALCulate:MARKer[1]|2|3|4|5|6|7|8|9|10:MODE
:CALCulate:ACPower:MARKer[1]|2|3|4|5|6|7|8|9|10:MODE
:CALCulate:CHPower:MARKer[1]|2|3|4|5|6|7|8|9|10:MODE
:CALCulate:BPOWer|:TXPower:MARKer[1]|2|3|4|5|6|7|8|9|10:MODE

:CALCulate:OBWidth:MARKer[1]|2|3|4|5|6|7|8|9|10:MODE?
Marker Mode Query

Function

This command queries the marker mode.
Refer to
:CALCulate:MARKer[1]|2|3|4|5|6|7|8|9|10:MODE?.

Related command

This command has the same function as the following commands.
:CALCulate:MARKer[1]|2|3|4|5|6|7|8|9|10:MODE?
:CALCulate:ACPower:MARKer[1]|2|3|4|5|6|7|8|9|10:MODE?
:CALCulate:CHPower:MARKer[1]|2|3|4|5|6|7|8|9|10:MODE?
:CALCulate:BPOWer|:TXPower:MARKer[1]|2|3|4|5|6|7|8|9|10:MODE?
:CALCulate:OBWidth:MARKer[1]|2|3|4|5|6|7|8|9|10:X <freq>|<time>

Zone Marker Frequency (Time)

Function

This command moves the center of the zone marker to the specified frequency or time.
Refer to
:CALCulate:MARKer[1]|2|3|4|5|6|7|8|9|10:X.

Related command

This command has the same function as the following commands.
:CALCulate:MARKer[1]|2|3|4|5|6|7|8|9|10:X

:CALCulate:OBWidth:MARKer[1]|2|3|4|5|6|7|8|9|10:X?

Zone Marker Frequency (Time) Query

Function

This command queries the center of the zone marker.
Refer to
:CALCulate:MARKer[1]|2|3|4|5|6|7|8|9|10:X?.

Related command

This command has the same function as the following commands.
:CALCulate:MARKer[1]|2|3|4|5|6|7|8|9|10:X?
:CALCulate:ACPower:MARKer[1]|2|3|4|5|6|7|8|9|10:X?
:CALCulate:CHPower:MARKer[1]|2|3|4|5|6|7|8|9|10:X?
:CALCulate:BFOWer|:TXPower:MARKer[1]|2|3|4|5|6|7|8|9|10:X?
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Zone Marker Position

Function

This command moves the center of the zone marker to the specified position.
Refer to :

Related command

This command has the same function as the following commands.
:CALCulate:MARKer[1]|2|3|4|5|6|7|8|9|10:X:POSition

:CALCulate:OBWidth:MARKer[1]|2|3|4|5|6|7|8|9|10:X:POSition?
Zone Marker Position Query

Function

This command queries the position of the zone marker.
Refer to :
:CALCulate:MARKer[1]|2|3|4|5|6|7|8|9|10:X:POSition?.

Related command

This command has the same function as the following commands.
:CALCulate:MARKer[1]|2|3|4|5|6|7|8|9|10:X:POSition?
:CALCulate:OBWidth:MARKer[1]|2|3|4|5|6|7|8|9|10:Y?

**Marker Level Query**

**Function**

This command queries the level at the marker point. Refer to

:CALCulate:MARKer[1]|2|3|4|5|6|7|8|9|10[:PEAK]:Y?.

**Related command**

This command has the same function as the following commands.

:CALCulate:MARKer[1]|2|3|4|5|6|7|8|9|10[:PEAK]:Y?
:CALCulate:ACPower:MARKer[1]|2|3|4|5|6|7|8|9|10:Y?
:CALCulate:CHPower:MARKer[1]|2|3|4|5|6|7|8|9|10:Y?
:CALCulate:SPURious:MARKer[1]|2|3|4|5|6|7|8|9|10:Y?
**Title Entry**

This command registers the title character string.  
Refer to  
:DISPlay:ANNotation:TITLe:DATA.

**Related command**

This command has the same function as the following commands.  
:DISPlay:ANNotation:TITLe:DATA  
:DISPlay:ACPower:ANNotation:TITLe:DATA  
:DISPlay:CHPower:ANNotation:TITLe:DATA  
:DISPlay:SEMask:ANNotation:TITLe:DATA  
:DISPlay:BPOWer|:TXPower:ANNotation:TITLe:DATA

**Title Entry Query**

This command queries the title character string.  
Refer to  
:DISPlay:ANNotation:TITLe:DATA?.

**Related command**

This command has the same function as the following commands.  
:DISPlay:ANNotation:TITLe:DATA?  
:DISPlay:ACPower:ANNotation:TITLe:DATA?  
:DISPlay:CHPower:ANNotation:TITLe:DATA?  
:DISPlay:SEMask:ANNotation:TITLe:DATA?  
:DISPlay:BPOWer|:TXPower:ANNotation:TITLe:DATA?
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:DISPlay:OBWidth:VIEW[1]:WINDow[1]:TRACe:Y[:SCAlE]:PDIVision

<rel_ampl>

Log Scale Range

Function

This command sets the Y-axis scale magnification when Scale Mode is set to Log.

Refer to


Related command

This command has the same function as the following commands.

:DISPlay:WINDow[1]:TRACe:Y[:SCAlE]:[LOGarithmic]:PDIVision

:DISPlay:ACPower:VIEW[1]:WINDow[1]:TRACe:Y[:SCAlE]:PDIVision

:DISPlay:CHPower:VIEW[1]:WINDow[1]:TRACe:Y[:SCAlE]:PDIVision

:DISPlay:SEMask:VIEW[1]:WINDow[1]:TRACe:Y[:SCAlE]:PDIVision

:DISPlay:BPOWer|:TXPower:VIEW[1]:WINDow[1]:TRACe:Y[:SCAlE]:PDIVision
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:DISPlay:OBWidth:VIEW[1]:WINDow[1]:TRACe:Y[:SCALe]:PDIVision?

Log Scale Range Query

Function

This command queries the Y-axis scale magnification when Scale Mode is set to Log.
Refer to
:DISPlay:WINDow[1]:TRACe:Y[:SCALe]:[LOGarithmic]:PDIVision?.

Related command

This command has the same function as the following commands.
:DISPlay:WINDow[1]:TRACe:Y[:SCALe]:[LOGarithmic]:PDIVision?
:DISPlay:ACPower:VIEW[1]:WINDow[1]:TRACe:Y[:SCALe]:PDIVision?
:DISPlay:CHPower:VIEW[1]:WINDow[1]:TRACe:Y[:SCALe]:PDIVision?
:DISPlay:SEMask:VIEW[1]:WINDow[1]:TRACe:Y[:SCALe]:PDIVision?
:DISPlay:BPOWer[:TXPower:VIEW[1]:WINDow[1]:TRACe:Y[:SCALe]:PDIVision?
:DISPlay:OBWidth:VIEW[1]:WINDow[1]:TRACe:Y[:SCALe]:RLEVel <real>

Reference Level

Function

This command sets the reference level.
Refer to
:DISPlay:WINDow[1]:TRACe:Y[:SCALe]:RLEVel.

Related command

This command has the same function as the following commands.
:DISPlay:WINDow[1]:TRACe:Y[:SCALe]:RLEVel
:DISPlay:ACPower:VIEW[1]:WINDow[1]:TRACe:Y[:SCALe]:RLEVel
:DISPlay:CHPower:VIEW[1]:WINDow[1]:TRACe:Y[:SCALe]:RLEVel
:DISPlay:SEMak:VIEW[1]:WINDow[1]:TRACe:Y[:SCALe]:RLEVel
:DISPlay:BFOWer:TXPower:VIEW[1]:WINDow[1]:TRACe:Y[:SCALe]:RLEVel

:DISPlay:OBWidth:VIEW[1]:WINDow[1]:TRACe:Y[:SCALe]:RLEVel?

Reference Level Query

Function

This command queries the reference level.
Refer to
:DISPlay:WINDow[1]:TRACe:Y[:SCALe]:RLEVel?.

Related command

This command has the same function as the following commands.
:DISPlay:WINDow[1]:TRACe:Y[:SCALe]:RLEVel?
:DISPlay:ACPower:VIEW[1]:WINDow[1]:TRACe:Y[:SCALe]:RLEVel?
:DISPlay:CHPower:VIEW[1]:WINDow[1]:TRACe:Y[:SCALe]:RLEVel?
:DISPlay:SEMak:VIEW[1]:WINDow[1]:TRACe:Y[:SCALe]:RLEVel?
:DISPlay:BFOWer:TXPower:VIEW[1]:WINDow[1]:TRACe:Y[:SCALe]:RLEVel?
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:TRIGger:OBWidth[:SEQUence]:SOURce

**EXTernal[1]|IMMEDIATE|WIF|RF Burst|VID eo|SG|BBIF|FRAME**

**Trigger Source**

**Function**

This command selects the trigger source.

Refer to

:TRIGger[:SEQUence]:SOURce.

**Related command**

This command has the same function as the following commands.

:TRIGger[:SEQUence]:SOURce

:TRIGger:ACPower[:SEQUence]:SOURce

:TRIGger:CHPower[:SEQUence]:SOURce

:TRIGger:SEMask[:SEQUence]:SOURce

:TRIGger:BPOWe|:TXPower[:SEQUence]:SOURce


:TRIGger:OBWidth[:SEQUence]:SOURce?

**Trigger Source Query**

**Function**

This command queries the trigger source.

Refer to

:TRIGger[:SEQUence]:SOURce?.

**Related command**

This command has the same function as the following commands.

:TRIGger[:SEQUence]:SOURce?

:TRIGger:ACPower[:SEQUence]:SOURce?

:TRIGger:CHPower[:SEQUence]:SOURce?

:TRIGger:SEMask[:SEQUence]:SOURce?

:TRIGger:BPOW er|:TXPower[:SEQUence]:SOURce?
[:SENSe]:OBWidth:AVERage:COUNt <integer>
Average Count

Function

This command sets the storage count.
Refer to
[:SENSe]:AVERage:COUNt.

Related command

This command has the same function as the following commands.
[:SENSe]:AVERage:COUNt
[:SENSe]:ACPower:AVERage:COUNt
[:SENSe]:CHPower:AVERage:COUNt
[:SENSe]:SEMask:AVERage:COUNt
[:SENSe]:BPOWer|:TXPower:AVERage:COUNt

[:SENSe]:OBWidth:AVERage:COUNt?
Average Count Query

Function

This command queries the storage count.
Refer to
[:SENSe]:AVERage:COUNt?.

Related command

This command has the same function as the following commands.
[:SENSe]:AVERage:COUNt?
[:SENSe]:ACPower:AVERage:COUNt?
[:SENSe]:CHPower:AVERage:COUNt?
[:SENSe]:SEMask:AVERage:COUNt?
[:SENSe]:BPOWer|:TXPower:AVERage:COUNt?
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[:SENSe]:OBWidth:AVERage[:STATe] ON|OFF|1|0

Storage Mode

Function

This command sets the storage mode for Trace A.
Refer to
:TRACe[1]|2|3|4|5|6:STORage:MODE.

Related command

This command has the same function as the following commands.
:TRACe[1]|2|3|4|5|6:STORage:MODE
[:SENSe]:ACPower:AVERage[:STATe]
[:SENSe]:CHPower:AVERage[:STATe]
[:SENSe]:SEMask:AVERage[:STATe]
[:SENSe]:BPOWer|:TXPower:AVERage[:STATe]
[:SENSe]:SPURious:AVERage[:STATe]

[:SENSe]:OBWidth:AVERage[:STATe]?

Storage Mode Query

Function

This command queries the storage mode for Trace A.
Refer to
:TRACe[1]|2|3|4|5|6:STORage:MODE?.

Related command

This command has the same function as the following commands.
:TRACe[1]|2|3|4|5|6:STORage:MODE?
[:SENSe]:ACPower:AVERage[:STATe]?
[:SENSe]:CHPower:AVERage[:STATe]?
[:SENSe]:SEMask:AVERage[:STATe]?
[:SENSe]:BPOWer|:TXPower:AVERage[:STATe]?
[:SENSe]:SPURious:AVERage[:STATe]?
[:SENSe]:OBWidth:BANDwidth[:RESolution] <freq>

Resolution Bandwidth

Function

This command sets the resolution bandwidth (RBW). Refer to [:SENSe]:BANDwidth|:BWIDth[:RESolution].

Related command

This command has the same function as the following commands.
:CALCulate:BANDwidth|:BWIDth[:RESolution]
[:SENSe]:BANDwidth|:BWIDth[:RESolution]
[:SENSe]:ACPower:BANDwidth[:RESolution]
[:SENSe]:CHPower:BANDwidth[:RESolution]
[:SENSe]:BPOWer|:TXPower:BANDwidth[:RESolution]
:CALCulate:ACPower:BANDwidth[:RESolution]
:CALCulate:CHPower:BANDwidth[:RESolution]
:CALCulate:OBWidth:BANDwidth[:RESolution]
:CALCulate:BPOWer|:TXPower:BANDwidth[:RESolution]

[:SENSe]:OBWidth:BANDwidth[:RESolution]?

Resolution Bandwidth Query

Function

This command queries the resolution bandwidth (RBW). Refer to [:SENSe]:BANDwidth|:BWIDth[:RESolution]?

Related command

This command has the same function as the following commands.
:CALCulate:BANDwidth|:BWIDth[:RESolution]?
[:SENSe]:BANDwidth|:BWIDth[:RESolution]?
[:SENSe]:ACPower:BANDwidth[:RESolution]?
[:SENSe]:CHPower:BANDwidth[:RESolution]?
[:SENSe]:BPOWer|:TXPower:BANDwidth[:RESolution]?
:CALCulate:ACPower:BANDwidth[:RESolution]?
:CALCulate:CHPower:BANDwidth[:RESolution]?
:CALCulate:OBWidth:BANDwidth[:RESolution]?
:CALCulate:BPOWer|:TXPower:BANDwidth[:RESolution]?
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:CALCulate:OBWidth:BANDwidth[:RESolution] <freq>
Resolution Bandwidth

Function
This command sets the resolution bandwidth (RBW).
Refer to
[:SENSe]:BANDwidth|:BWIDth[:RESolution].

Related command
This command has the same function as the following commands.
[:SENSe]:BANDwidth|:BWIDth[:RESolution]
[:SENSe]:ACPower:BANDwidth[:RESolution]
[:SENSe]:CHPower:BANDwidth[:RESolution]
[:SENSe]:OBWidth:BANDwidth[:RESolution]
[:SENSe]:BPOWer|:TXPower:BANDwidth[:RESolution]
:CALCulate:BANDwidth|:BWIDth[:RESolution]
:CALCulate:ACPower:BANDwidth[:RESolution]
:CALCulate:CHPower:BANDwidth[:RESolution]
:CALCulate:BPOWer|:TXPower:BANDwidth[:RESolution]

:CALCulate:OBWidth:BANDwidth[:RESolution]?
Resolution Bandwidth Query

Function
This command queries the resolution bandwidth (RBW).
Refer to
[:SENSe]:BANDwidth|:BWIDth[:RESolution]?.

Related command
This command has the same function as the following commands.
:CALCulate:BANDwidth|:BWIDth[:RESolution]?
[:SENSe]:BANDwidth|:BWIDth[:RESolution]?
[:SENSe]:ACPower:BANDwidth[:RESolution]?
[:SENSe]:CHPower:BANDwidth[:RESolution]?
[:SENSe]:OBWidth:BANDwidth[:RESolution]?
[:SENSe]:BPOWer|:TXPower:BANDwidth[:RESolution]?
:CALCulate:ACPower:BANDwidth[:RESolution]?
:CALCulate:CHPower:BANDwidth[:RESolution]?
:CALCulate:BPOWer|:TXPower:BANDwidth[:RESolution]?
[:SENSe]:OBWidth:BANDwidth[::RESolution]:AUTO ON|OFF|1|0
Resolution Bandwidth Auto/Manual

Function

This command enables/disables the automatic resolution bandwidth (RBW) setting function.
Refer to
[:SENSe]:BANDwidth::BWIDth::RESolution::AUTO.

Related command

This command has the same function as the following commands.
:CALCulate:BANDwidth::BWIDth::RESolution::AUTO
[:SENSe]:BANDwidth::BWIDth::RESolution::AUTO
[:SENSe]:ACPower:BANDwidth::RESolution::AUTO
[:SENSe]:CHPower:BANDwidth::RESolution::AUTO
:CALCulate:ACPower:BANDwidth::RESolution::AUTO
:CALCulate:CHPower:BANDwidth::RESolution::AUTO
:CALCulate:OBWidth:BANDwidth::RESolution::AUTO

[:SENSe]:OBWidth:BANDwidth[::RESolution]:AUTO?
Resolution Bandwidth Auto/Manual Query

Function

This command queries whether the resolution bandwidth (RBW) is set to Auto.
Refer to
[:SENSe]:BANDwidth::BWIDth::RESolution::AUTO?.

Related command

This command has the same function as the following commands.
[:SENSe]:BANDwidth::BWIDth::RESolution::AUTO?
[:SENSe]:ACPower:BANDwidth::RESolution::AUTO?
[:SENSe]:CHPower:BANDwidth::RESolution::AUTO?
:CALCulate:BANDwidth::BWIDth::RESolution::AUTO?
:CALCulate:ACPower:BANDwidth::RESolution::AUTO?
:CALCulate:CHPower:BANDwidth::RESolution::AUTO?
:CALCulate:OBWidth:BANDwidth::RESolution::AUTO?
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:CALCulate:OBWidth:BANDwidth[:RESolution]:AUTO ON|OFF|1|0
Resolution Bandwidth Auto/Manual

Function
This command enables/disables the automatic resolution bandwidth (RBW) setting function.
Refer to [:SENSe]:BANDwidth|:BWIDth[:RESolution]:AUTO.

Related command
This command has the same function as the following commands.
:CALCulate:BANDwidth|:BWIDth[:RESolution]:AUTO
[:SENSe]:BANDwidth|:BWIDth[:RESolution]:AUTO
[:SENSe]:ACPower:BANDwidth[:RESolution]:AUTO
[:SENSe]:CHPower:BANDwidth[:RESolution]:AUTO
[:SENSe]:OBWidth:BANDwidth[:RESolution]:AUTO
:CALCulate:ACPower:BANDwidth[:RESolution]:AUTO
:CALCulate:CHPower:BANDwidth[:RESolution]:AUTO

:CALCulate:OBWidth:BANDwidth[:RESolution]:AUTO?
Resolution Bandwidth Auto/Manual Query

Function
This command queries whether the resolution bandwidth (RBW) is set to Auto.
Refer to [:SENSe]:BANDwidth|:BWIDth[:RESolution]:AUTO?.

Related command
This command has the same function as the following commands.
:CALCulate:BANDwidth|:BWIDth[:RESolution]:AUTO?
[:SENSe]:BANDwidth|:BWIDth[:RESolution]:AUTO?
[:SENSe]:ACPower:BANDwidth[:RESolution]:AUTO?
[:SENSe]:CHPower:BANDwidth[:RESolution]:AUTO?
[:SENSe]:OBWidth:BANDwidth[:RESolution]:AUTO?
:CALCulate:ACPower:BANDwidth[:RESolution]:AUTO?
:CALCulate:CHPower:BANDwidth[:RESolution]:AUTO?
[:,SENSe]:OBWidth:BANDwidth[:RESolution]:MODE NORMal|CISPr
Resolution Bandwidth Normal/CISPR

**Function**

This command switches the Resolution Bandwidth mode. For details, refer to
[:,SENSe]:BANDwidth|:BWIDth[:RESolution]:MODE.

**Related Command**

This command has the same function as the following commands.
[:,SENSe]:ACPower:BANDwidth[:RESolution]:MODE
[:,SENSe]:CHPower:BANDwidth[:RESolution]:MODE
[:,SENSe]:OBWidth:BANDwidth[:RESolution]:MODE
[:,SENSe]:BPOWer|:TXPower:BANDwidth[:RESolution]:MODE
:CALCulate:BANDwidth|:BWIDth[:RESolution]:MODE
:CALCulate:ACPower:BANDwidth[:RESolution]:MODE
:CALCulate:CHPower:BANDwidth[:RESolution]:MODE
:CALCulate:OBWidth:BANDwidth[:RESolution]:MODE
:CALCulate:BPOWer|:TXPower:BANDwidth[:RESolution]:MODE

[:,SENSe]:OBWidth:BANDwidth[:RESolution]:MODE?
Resolution Bandwidth Normal/CISPR Query

**Function**

This command queries the Resolution Bandwidth mode. For details, refer to
[:,SENSe]:BANDwidth|:BWIDth[:RESolution]:MODE?.

**Related Command**

This command has the same function as the following commands.
[:,SENSe]:ACPower:BANDwidth[:RESolution]:MODE?
[:,SENSe]:CHPower:BANDwidth[:RESolution]:MODE?
[:,SENSe]:OBWidth:BANDwidth[:RESolution]:MODE?
[:,SENSe]:BPOWer|:TXPower:BANDwidth[:RESolution]:MODE?
:CALCulate:BANDwidth|:BWIDth[:RESolution]:MODE?
:CALCulate:ACPower:BANDwidth[:RESolution]:MODE?
:CALCulate:CHPower:BANDwidth[:RESolution]:MODE?
:CALCulate:OBWidth:BANDwidth[:RESolution]:MODE?
:CALCulate:BPOWer|:TXPower:BANDwidth[:RESolution]:MODE?
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:CALCulate:OBWidth:BANDwidth[:RESolution]:MODE NORMal|CISPr
Resolution Bandwidth Normal/CISPR

Function

This command switches the Resolution Bandwidth mode. For details, refer to [:SENSe]:BANDwidth|:BWIDth[:RESolution]:MODE.

Related Command

This command has the same function as the following commands.
[:SENSe]:ACPower:BANDwidth[:RESolution]:MODE
[:SENSe]:CHPower:BANDwidth[:RESolution]:MODE
[:SENSe]:OBWidth:BANDwidth[:RESolution]:MODE
[:SENSe]:BPOWer|:TXPower:BANDwidth[:RESolution]:MODE
:CALCulate:BANDwidth|:BWIDth[:RESolution]:MODE
:CALCulate:ACPower:BANDwidth[:RESolution]:MODE
:CALCulate:CHPower:BANDwidth[:RESolution]:MODE
:CALCulate:OBWidth:BANDwidth[:RESolution]:MODE
:CALCulate:BPOWer|:TXPower:BANDwidth[:RESolution]:MODE

:CALCulate:OBWidth:BANDwidth[:RESolution]:MODE?
Resolution Bandwidth Normal/CISPR Query

Function

This command queries the Resolution Bandwidth mode. For details, refer to [:SENSe]:BANDwidth|:BWIDth[:RESolution]:MODE?.

Related Command

This command has the same function as the following commands.
[:SENSe]:ACPower:BANDwidth[:RESolution]:MODE?
[:SENSe]:CHPower:BANDwidth[:RESolution]:MODE?
[:SENSe]:OBWidth:BANDwidth[:RESolution]:MODE?
[:SENSe]:BPOWer|:TXPower:BANDwidth[:RESolution]:MODE?
:CALCulate:BANDwidth|:BWIDth[:RESolution]:MODE?
:CALCulate:ACPower:BANDwidth[:RESolution]:MODE?
:CALCulate:CHPower:BANDwidth[:RESolution]:MODE?
:CALCulate:OBWidth:BANDwidth[:RESolution]:MODE?
:CALCulate:BPOWer|:TXPower:BANDwidth[:RESolution]:MODE?
[:SENSe]:OBWidth:BANDwidth:VIDeo <freq>

Video Bandwidth

Function

This command sets the video bandwidth (VBW).
Refer to [:SENSe]:BANDwidth|:BWIDth:VIDeo.

Related command

This command has the same function as the following commands.
[:SENSe]:BANDwidth|:BWIDth:VIDeo
[:SENSe]:ACPower:BANDwidth:VIDeo
[:SENSe]:CHPower:BANDwidth:VIDeo

[:SENSe]:OBWidth:BANDwidth:VIDeo?

Video Bandwidth Query

Function

This command queries the video bandwidth (VBW).
Refer to [:SENSe]:BANDwidth|:BWIDth:VIDeo?.

Related command

This command has the same function as the following commands.
[:SENSe]:BANDwidth|:BWIDth:VIDeo?
[:SENSe]:ACPower:BANDwidth:VIDeo?
[:SENSe]:CHPower:BANDwidth:VIDeo?
[:SENSe]:OBWidth:BANDwidth:VIDeo:AUTO OFF|ON|0|1
Video Bandwidth Auto/Manual

Function

This command sets the video bandwidth (VBW).
Refer to
[:SENSe]:BANDwidth|:BWIDth:VIDeo:AUTO.

Related command

This command has the same function as the following commands.
[:SENSe]:BANDwidth|:BWIDth:VIDeo:AUTO
[:SENSe]:ACPower:BANDwidth:VIDeo:AUTO
[:SENSe]:CHPower:BANDwidth:VIDeo:AUTO

[:SENSe]:OBWidth:BANDwidth:VIDeo:AUTO?
Video Bandwidth Auto/Manual Query

Function

This command queries whether the resolution bandwidth (RBW) is set to Auto.
Refer to
[:SENSe]:BANDwidth|:BWIDth:VIDeo:AUTO?.

Related command

This command has the same function as the following commands.
[:SENSe]:BANDwidth|:BWIDth:VIDeo:AUTO?
[:SENSe]:ACPower:BANDwidth:VIDeo:AUTO?
[:SENSe]:CHPower:BANDwidth:VIDeo:AUTO?
This command selects the detection mode of the waveform pattern. Refer to [:SENSe]:DETector[:FUNCTION].

This command has the same function as the following commands.
[:SENSe]:DETector[:FUNCTION]
[:SENSe]:ACPower:DETector[:FUNCTION]
[:SENSe]:CHPower:DETector[:FUNCTION]
:CALCulate:ACPower:DETector[:FUNCTION]
:CALCulate:CHPower:DETector[:FUNCTION]
:CALCulate:OBWidth:DETector[:FUNCTION]

This command queries the detection mode of the waveform pattern. Refer to [:SENSe]:DETector[:FUNCTION]?.

This command has the same function as the following commands.
[:SENSe]:DETector[:FUNCTION]?
[:SENSe]:ACPower:DETector[:FUNCTION]?
[:SENSe]:CHPower:DETector[:FUNCTION]?
[:SENSe]:SEMask:DETector:CARRier[:FUNCTION]?
:CALCulate:DETector[:FUNCTION]?
:CALCulate:ACPower:DETector[:FUNCTION]?
:CALCulate:CHPower:DETector[:FUNCTION]?
:CALCulate:OBWidth:DETector[:FUNCTION]?
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:CALCulate:OBWidth:DEToctor[:FUNCTION]
NORMal|POSitive|SAMPle|NEGative|RMS|QPEak|CAVerage|CRMS
Detection Mode

Function

This command selects the detection mode of the waveform pattern. Refer to
[:SENSe]:DEToctor[:FUNCTION].

Related command

This command has the same function as the following commands.
[:SENSe]:DEToctor[:FUNCTION]
[:SENSe]:ACPower:DEToctor[:FUNCTION]
[:SENSe]:CHPower:DEToctor[:FUNCTION]
[:SENSe]:OBWidth:DEToctor[:FUNCTION]
:CALCulate:ACPower:DEToctor[:FUNCTION]
:CALCulate:CHPower:DEToctor[:FUNCTION]

:CALCulate:OBWidth:DEToctor[:FUNCTION]?
Detection Mode Query

Function

This command queries the detection mode of the waveform pattern. Refer to
[:SENSe]:DEToctor[:FUNCTION]?

Related command

This command has the same function as the following commands.
[:SENSe]:DEToctor[:FUNCTION]?
[:SENSe]:ACPower:DEToctor[:FUNCTION]?
[:SENSe]:CHPower:DEToctor[:FUNCTION]?
[:SENSe]:OBWidth:DEToctor[:FUNCTION]?
[:SENSe]:SEMask:DEToctor:CARRier[:FUNCTION]?
:CALCulate:DEToctor[:FUNCTION]?
:CALCulate:ACPower:DEToctor[:FUNCTION]?
:CALCulate:CHPower:DEToctor[:FUNCTION]?
[:SENSe]:OBWidth:FREQuency:SPAN <freq>
Frequency Span

Function

This command sets the frequency span. Refer to [:SENSe]:FREQuency:SPAN.

Related command

This command has the same function as the following commands.
[:SENSe]:FREQuency:SPAN
[:SENSe]:ACPower:FREQuency:SPAN
[:SENSe]:CHPower:FREQuency:SPAN

[:SENSe]:OBWidth:FREQuency:SPAN?
Frequency Span Query

Function

This command queries the frequency span. Refer to [:SENSe]:FREQuency:SPAN?.

Related command

This command has the same function as the following commands.
[:SENSe]:FREQuency:SPAN?
[:SENSe]:ACPower:FREQuency:SPAN?
[:SENSe]:CHPower:FREQuency:SPAN?

[:SENSe]:OBWidth:FREQuency:SPAN:FULL
Full Span

Function

This command maximizes the frequency span. Refer to [:SENSe]:FREQuency:SPAN:FULL.

Related command

This command has the same function as the following commands.
[:SENSe]:FREQuency:SPAN:FULL
[:SENSe]:ACPower:FREQuency:SPAN:FULL
[:SENSe]:CHPower:FREQuency:SPAN:FULL
[:SENSe]:OBWidth:SWEep:POINts <integer>

Trace Point

Function

This command sets the number of the trace display points. Refer to [:SENSe]:SWEep:POINts.

Related command

This command has the same function as the following commands.

[:SENSe]:SWEep:POINts
[:SENSe]:ACPower:SWEep:POINts
[:SENSe]:CHPower:SWEep:POINts

[:SENSe]:OBWidth:SWEep:POINts?

Trace Point Query

Function

This command queries the number of the trace display points. Refer to [:SENSe]:SWEep:POINts?.

Related command

This command has the same function as the following commands.

[:SENSe]:SWEep:POINts?
[:SENSe]:ACPower:SWEep:POINts?
[:SENSe]:CHPower:SWEep:POINts?
[:SENSe]:OBWidth:SWEp:TIME <time>

Sweep Time

Function
>This command sets the sweep time.
Refer to
[:SENSe]:SWEp:TIME.

Related command
>This command has the same function as the following commands.
[:SENSe]:SWEp:TIME
[:SENSe]:ACPower:SWEp:TIME
[:SENSe]:CHPower:SWEp:TIME
[:SENSe]:BPOWer|:TXPower:SWEp:TIME

[:SENSe]:OBWidth:SWEp:TIME?

Sweep Time Query

Function
>This command queries the sweep time.
Refer to
[:SENSe]:SWEp:TIME?.

Related command
>This command has the same function as the following commands.
[:SENSe]:SWEp:TIME?
[:SENSe]:ACPower:SWEp:TIME?
[:SENSe]:CHPower:SWEp:TIME?
[:SENSe]:BPOWer|:TXPower:SWEp:TIME
[:SENSe]:OBWidth:SWEep:TIME:AUTO OFF|ON|0|1
Sweep Time Auto/Manual

Function

This command enables/disables the automatic sweep time setting function.
Refer to
[:SENSe]:SWEep:TIME:AUTO.

Related command

This command has the same function as the following commands.
[:SENSe]:SWEep:TIME:AUTO
[:SENSe]:ACPower:SWEep:TIME:AUTO
[:SENSe]:CHPower:SWEep:TIME:AUTO

[:SENSe]:OBWidth:SWEep:TIME:AUTO?
Sweep Time Auto/Manual Query

Function

This command queries whether the automatic sweep time setting function is enabled.
Refer to
[:SENSe]:SWEep:TIME:AUTO?.

Related command

This command has the same function as the following commands.
[:SENSe]:SWEep:TIME:AUTO?
[:SENSe]:ACPower:SWEep:TIME:AUTO?
[:SENSe]:CHPower:SWEep:TIME:AUTO?
:CALCulate:OBWidth:MARKer[1]|2|3|4|5|6|7|8|9|10:REFerence <integer>

Relative To

Function

This command sets the reference marker when the marker mode is set to Delta.
Refer to

Related command

This command has the same function as the following commands.
:CALCulate:MARKer[1]|2|3|4|5|6|7|8|9|10:REFerence
:CALCulate:ACPower:MARKer[1]|2|3|4|5|6|7|8|9|10:REFerence
:CALCulate:CHPower:MARKer[1]|2|3|4|5|6|7|8|9|10:REFerence
:CALCulate:BPOWer|:TXPower:MARKer[1]|2|3|4|5|6|7|8|9|10:REFerence

:CALCulate:OBWidth:MARKer[1]|2|3|4|5|6|7|8|9|10:REFerence?

Relative To Query

Function

This command queries the reference marker when the marker mode is set to Delta.
Refer to
:CALCulate:MARKer[1]|2|3|4|5|6|7|8|9|10:REFerence?.

Related command

This command has the same function as the following commands.
:CALCulate:MARKer[1]|2|3|4|5|6|7|8|9|10:REFerence?
:CALCulate:ACPower:MARKer[1]|2|3|4|5|6|7|8|9|10:REFerence?
:CALCulate:CHPower:MARKer[1]|2|3|4|5|6|7|8|9|10:REFerence?
:CALCulate:BPOWer|:TXPower:MARKer[1]|2|3|4|5|6|7|8|9|10:REFerence?
2.13 Spectrum Emission Mask

Table 2.13-1 lists device messages for Spectrum Emission Mask measurement.

Table 2.13-1  Device messages for Spectrum Emission Mask measurement

<table>
<thead>
<tr>
<th>Function</th>
<th>Device Message</th>
</tr>
</thead>
<tbody>
<tr>
<td>Measure Spectrum Emission Mask</td>
<td>[:SENSe]:SEMask[:STATE] ON</td>
</tr>
<tr>
<td></td>
<td>[:SENSe]:SEMask[:STATE]?</td>
</tr>
<tr>
<td>Spectrum Emission Mask Limit Side</td>
<td>[:SENSe]:SEMask:OFFSet[1]:SIDE BOTH</td>
</tr>
<tr>
<td></td>
<td>[:SENSe]:SEMask:OFFSet[1]:SIDE?</td>
</tr>
<tr>
<td>Spectrum Emission Mask Reference Type</td>
<td>[:SENSe]:SEMask:TYPE TPRef</td>
</tr>
<tr>
<td></td>
<td>[:SENSe]:SEMask:TYPE?</td>
</tr>
<tr>
<td></td>
<td>:CALCulate:SEMask:TYPE TPRef</td>
</tr>
<tr>
<td></td>
<td>:CALCulate:SEMask:TYPE?</td>
</tr>
<tr>
<td>Spectrum Emission Mask Reference Power</td>
<td>[:SENSe]:SEMask:CARRier[:POWer] &lt;ampl&gt;</td>
</tr>
<tr>
<td></td>
<td>[:SENSe]:SEMask:CARRier[:POWer]?</td>
</tr>
<tr>
<td></td>
<td>:CALCulate:SEMask:CARRier[:POWer] &lt;ampl&gt;</td>
</tr>
<tr>
<td></td>
<td>:CALCulate:SEMask:CARRier[:POWer]?</td>
</tr>
<tr>
<td>Spectrum Emission Mask Integrate Bandwidth</td>
<td>[:SENSe]:SEMask:BANDwidth[1]:CHANnel</td>
</tr>
<tr>
<td></td>
<td>[:SENSe]:SEMask:BANDwidth[1]:CHANnel</td>
</tr>
<tr>
<td>Spectrum Emission Mask Attenuator</td>
<td>[:SENSe]:SEMask:ATTenuation &lt;rel_ampl&gt;</td>
</tr>
<tr>
<td></td>
<td>[:SENSe]:SEMask:ATTenuation?</td>
</tr>
<tr>
<td>Spectrum Emission Mask Offset Attenuator</td>
<td>[:SENSe]:SEMask:OFFSet[1]:LIST:ATTenuation &lt;rel_ampl_1&gt;</td>
</tr>
</tbody>
</table>
|                                 | [,<rel_ampl_2>|AUTO [,<rel_ampl_3>|AUTO [,<rel_ampl_4>|AUTO [,<rel_ampl_5>|AUTO [,<rel_ampl_6>|AUTO [,<rel_ampl_7>|AUTO [,<rel_ampl_8>|AUTO [,<rel_ampl_9>|AUTO [,<rel_ampl_10>|AUTO [,<rel_ampl_11>|AUTO [,<rel_ampl_12>|AUTO]]]]]]] ]]] ]]] ]]] ]]] ]]] ]]] ]]] ]]] ]]] ]]] ]]] ]]] ]]] ]]] ]]] ]]] ]]] ]]] ]]] ]]] ]]] ]]] ]]] ]]] ]]] ]]] ]]] ]]] ]]] ]]] ]]] ]]] ]]] ]]] ]]] ]]] ]]] ]]] ]]] ]]] ]]] ]]] ]]] ]]] ]]] ]]] ]]] ]]] ]]] ]]] ]]] ]]] ]]] ]]] ]]] ]]] ]]] ]]] ]]] ]]] ]]] ]]] ]]] ]]] ]]] ]]] ]]] ]]] ]]] ]]] ]]] ]]] ]]] ]]] ]]] ]]] ]]] ]]] ]]] ]]] ]]] ]]] ]]] ]]] ]]] ]]] ]]] ]]] ]]] ]]] ]]] ]]] ]]] ]]] ]]] ]]] ]]] ]]] ]]] ]]] ]]] ]]] ]]] ]]] ]]] ]]] ]]] ]]] ]]] ]]] ]]] ]]] ]]] ]]] ]]] ]]] ]]] ]]] ]]] ]]] ]]] ]]] ]]] ]]] ]]] ]]] ]]] ]]] ]]] ]]] ]]] ]]] ]]] ]]] ]]] ]]] ]]] ]]] ]]] ]]] ]]] ]]] ]]] ]]] ]]] ]]] ]]] ]]] ]]] ]]] ]]] ]]] ]]] ]]] ]]] ]]] ]]] ]]] ]]] ]]] ]]] ]]] ]]] ]]] ]]] ]]] ]]] ]]] ]]] ]]] ]]] ]]] ]]] ]]] ]]] ]]] ]]] ]]] ]]] ]]] ]]] ]]] ]]] ]]] ]]] ]]] ]]] ]]] ]]] ]]] ]]] ]]] ]]] ]]] ]]] ]]] ]]] ]]] ]]] ]]] ]]] ]]] ]]] ]]] ]]] ]]] ]]] ]]] ]]] ]]] ]]] ]]] ]]] ]]] ]]] ]]] ]]] ]]] ]]] ]]] ]]] ]]] ]]] ]]] ]]] ]]] ]]] ]]] ]]] ]]] ]]] ]]] ]]] ]]] ]]] ]]] ]]] ]]] ]]] ]]] ]]] ]]] ]]] ]]] ]]] ]]] ]]] ]]] ]]] ]]] ]]] ]]] ]]] ]]] ]]] ]]] ]]] ]]] ]]] ]]] ]]] ]]] ]]] ]]] ]]] ]]] ]]] ]]] ]]] ]]] ]]] ]]] ]]] ]]] ]]] ]]] ]]] ]]] ]]] ]]] ]]] ]]] ]]] ]]] ]]] ]]] ]]] ]]] ]]] ]]] ]]] ]]] ]]] ]]] ]]] ]]] ]]] ]]] ]]] ]]] ]]] ]]] ]]] ]]] ]]] ]]] ]]] ]]] ]]] ]]] ]]] ]]] ]]] ]]] ]]] ]]] ]]] ]]] ]]] ]]] ]]] ]]] ]]] ]]] ]]] ]]] ]]] ]]] ]]] ]]] ]]] ]]] ]]] ]]] ]]] ]]] ]]] ]]] ]]] ]]] ]]] ]]] ]]] ]]] ]]] ]]] ]]] ]]] ]]] ]]] } |} |} |} |} |} |} |} |} |} |} |} |} |} |} |} |} |} |} |} |} |} |} |} |} |} |} |} |} |} |} |} |} |} |} |} |} |} |} |} |} |} |} |} |} |} |} |} |} |} |} |} |} |} |} |} |} |} |} |} |} |} |} |} |} |} |} |} |} |} |} |} |} |} |} |} |} |} |} |} |} |} |} |} |} |} |} |} |} |} |} |} |} |} |} |} |} |} |} |} |} |} |} |} |} |} |} |} |} |} |} |} |} |} |} |} |} |} |} |} |} |} |} |} |} |} |} |} |} |} |} |} |} |} |} |} |} |} |} |} |} |} |} |} |} |} |} |} |} |} |} |} |} |} |} |} |} |} |} |} |} |} |} |} |} |} |} |} |} |} |} |} |} |} |} |} |} |} |} |} |} |} |} |} |} |} |} |} |} |} |} |} |} |} |} |} |} |} |} |} |} |} |} |} |} |} |} |} |} |} |} |} |} |} |} |} |} |} |} |} |} |} |} |} |} |} |} |} |} |} |} |} |} |} |} |} |} |} |} |} |} |} |} |} |} |} |} |} |} |} |} |} |} |} |} |} |} |} |} |} |} |} |} |} |} |} |} |} |} |} |} |} |} |} |} |} |} |} |} |} |} |} |} |} |} |} |} |} |} |} |} |} |} |} |} |} |} |} |} |} |} |} |} |} |} |} |} |} |} |} |} |} |} |} |} |} |} |} |} |} |} |} |} |} |} |} |} |} |} |} |} |} |} |} |} |} |} |} |} |} |} |} |} |} |} |} |} |} |} |} |} |} |} |} |} |} |} |} |} |} |} |} |} |} |} |} |} |} |} |} |} |} |} |} |} |} |} |} |} |} |} |} |} |} |} |} |} |} |} |} |} |} |} |} |} |} |} |} |} |} |} |} |} |} |} |} |} |} |} |} |} |} |} |} |} |} |} |} |} |} |} |} |} |} |} |} |} |} |} |} |} |} |} |} |} |} |} |} |} |} |} |} |} |} |} |} |} |} |} |} |} |} |} |} |} |} |} |} |} |} |} |} |} |} |} |} |} |} |} |} |} |} |} |} |} |} |} |} |} |} |} |} |} |} |} |} |} |} |} |} |} |} |} |} |} |} |} |} |} |} |} |} |} |} |} |} |} |} |} |} |} |} |} |} |} |} |} |} |} |} |} |} |} |} |} |} |} |} |} |} |} |} |} |} |} |} |} |} |} |} |} |} |} |} |} |} |} |} |} |} |} |} |} |} |} |} |} |} |} |} |} |} |} |} |} |} |} |} |} |} |} |} |} |} |} |} |} |} |} |} |} |} |} |} |} |} |} |} |} |} |} |} |} |} |} |} |} |} |} |} |} |} |} |} |} |} |} |} |} |} |} |} |} |} |} |} |} |} |} |} |} |} |} |} |} |} |} |} |} |} |} |} |} |} |} |} |} |} |} |} |} |} |} |} |} |} |} |} |} |} |} |} |} |} |} |} |} |} |} |} |} |} |} |} |} |} |} |} |} |} |} |} |} |} |} |} |} |} |} |} |} |} |} |} |} |} |} |} |} |} |} |} |} |} |} |} |} |} |} |} |} |} |} |} |} |} |} |} |} |} |} |} |} |} |} |} |} |} |} |} |} |} |}

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### 2.13 Spectrum Emission Mask

#### Table 2.13-1 Device messages for Spectrum Emission Mask measurement (Cont’d)

<table>
<thead>
<tr>
<th>Function</th>
<th>Device Message</th>
</tr>
</thead>
</table>
| Spectrum Emission Mask Offset Resolution Bandwidth | [:SENSe]:SEMask:OFFSet[1]:LIST:BANDwidth[1][:RESolution] <bandwidth_1>[,<bandwidth_2>[,<bandwidth_3>[,<bandwidth_4>[,<bandwidth_5>[,<bandwidth_6>[,<bandwidth_7>[,<bandwidth_8>[,<bandwidth_9>[,<bandwidth_10>[,<bandwidth_11>[,<bandwidth_12>]]]]]]]]]]]]]]]]]

| Spectrum Emission Mask Offset Resolution Bandwidth Auto/Manual | [:SENSe]:SEMask:OFFSet[1]:LIST:BANDwidth[1][:RESolution]:AUTO <switch_1>[,<switch_2>[,<switch_3>[,<switch_4>[,<switch_5>[,<switch_6>[,<switch_7>[,<switch_8>[,<switch_9>[,<switch_10>[,<switch_11>[,<switch_12>]]]]]]]]]]]]]]]]]

| Spectrum Emission Mask Video Bandwidth | [:SENSe]:SEMask:BANDwidth[1]:VIDeo <bandwidth>|OFF


| Spectrum Emission Mask Video Bandwidth Auto/Manual | [:SENSe]:SEMask:BANDwidth[1]:VIDeo:AUTO ON|OFF|1|0

| Spectrum Emission Mask Offset Video Bandwidth Auto/Manual | [:SENSe]:SEMask:OFFSet[1]:LIST:BANDwidth[1]:VIDeo:AUTO <switch_1>[,<switch_2>[,<switch_3>[,<switch_4>[,<switch_5>[,<switch_6>[,<switch_7>[,<switch_8>[,<switch_9>[,<switch_10>[,<switch_11>[,<switch_12>]]]]]]]]]]]]]]]

| Spectrum Emission Mask Video Bandwidth Mode | [:SENSe]:SEMask:BANDwidth[1]:VIDeo:MODE VIDeo|POWer

| Spectrum Emission Mask Offset Video Bandwidth Mode | [:SENSe]:SEMask:OFFSet[1]:LIST:BANDwidth[1]:VIDeo:MODE <method_1>[,<method_2>[,<method_3>[,<method_4>[,<method_5>[,<method_6>[,<method_7>[,<method_8>[,<method_9>[,<method_10>[,<method_11>[,<method_12>]]]]]]]]]]]]]]]

| Spectrum Emission Mask Video Bandwidth Mode | [:SENSe]:SEMask:BANDwidth[1]:VIDeo:MODE?
### Chapter 2  SCPI Device Message Details

#### Table 2.13-1  Device messages for Spectrum Emission Mask measurement (Cont’d)

<table>
<thead>
<tr>
<th>Function</th>
<th>Device Message</th>
</tr>
</thead>
<tbody>
<tr>
<td><strong>Spectrum Emission Mask Sweep Time</strong></td>
<td>[:SENSe]:SEMask:SWEep[1]:TIME &lt;time&gt;</td>
</tr>
<tr>
<td></td>
<td>[:SENSe]:SEMask:SWEep[1]:TIME?</td>
</tr>
<tr>
<td><strong>Spectrum Emission Mask Offset Sweep Time</strong></td>
<td>[:SENSe]:SEMask:OFFSET[1]:LIST:SWEep[1]:TIME &lt;time_1&gt;,&lt;time_2&gt;,&lt;time_3&gt;,&lt;time_4&gt;,&lt;time_5&gt;,&lt;time_6&gt;[,&lt;time_7&gt;[,&lt;time_8&gt;[,&lt;time_9&gt;[,&lt;time_10&gt;[,&lt;time_11&gt;[,&lt;time_12&gt;]]]]]] ]</td>
</tr>
<tr>
<td></td>
<td>[:SENSe]:SEMask:OFFSET[1]:LIST:SWEep[1]:TIME?</td>
</tr>
<tr>
<td><strong>Spectrum Emission Mask Sweep Time Auto/Manual</strong></td>
<td>[:SENSe]:SEMask:SWEep[1]:TIME:AUTO ON</td>
</tr>
<tr>
<td></td>
<td>[:SENSe]:SEMask:SWEep[1]:TIME:AUTO?</td>
</tr>
<tr>
<td><strong>Spectrum Emission Mask Offset Auto Sweep Time Auto/Manual</strong></td>
<td>[:SENSe]:SEMask:OFFSET[1]:LIST:SWEep[1]:TIME:AUTO &lt;switch_1&gt;[,&lt;switch_2&gt;[,&lt;switch_3&gt;[,&lt;switch_4&gt;[,&lt;switch_5&gt;[,&lt;switch_6&gt;[,&lt;switch_7&gt;[,&lt;switch_8&gt;[,&lt;switch_9&gt;[,&lt;switch_10&gt;[,&lt;switch_11&gt;]]]]]]]]]] ]]</td>
</tr>
<tr>
<td></td>
<td>[:SENSe]:SEMask:OFFSET[1]:LIST:SWEep[1]:TIME:AUTO?</td>
</tr>
<tr>
<td><strong>Spectrum Emission Mask Auto Sweep Time Select</strong></td>
<td>[:SENSe]:SEMask:SWEep[1]:TIME:AUTO:MODE NORMal</td>
</tr>
<tr>
<td></td>
<td>[:SENSe]:SEMask:SWEep[1]:TIME:AUTO:MODE?</td>
</tr>
<tr>
<td><strong>Spectrum Emission Mask Offset Auto Sweep Time Select</strong></td>
<td>[:SENSe]:SEMask:OFFSET[1]:LIST:SWEep[1]:TIME:AUTO:MODE &lt;mode_1&gt;[,&lt;mode_2&gt;[,&lt;mode_3&gt;[,&lt;mode_4&gt;[,&lt;mode_5&gt;[,&lt;mode_6&gt;[,&lt;mode_7&gt;[,&lt;mode_8&gt;[,&lt;mode_9&gt;[,&lt;mode_10&gt;[,&lt;mode_11&gt;[[,&lt;mode_12&gt;]]]]]]]]]]]] ]</td>
</tr>
<tr>
<td></td>
<td>[:SENSe]:SEMask:OFFSET[1]:LIST:SWEep[1]:TIME:AUTO:MODE?</td>
</tr>
<tr>
<td><strong>Spectrum Emission Mask Detection Mode</strong></td>
<td>[:SENSe]:SEMask:DETector[:FUNCtion] NORMal</td>
</tr>
<tr>
<td></td>
<td>[:SENSe]:SEMask:DETector[:FUNCtion]?</td>
</tr>
<tr>
<td></td>
<td>:CALCulate:SEMask:DETector[:FUNCtion] NORMal</td>
</tr>
<tr>
<td></td>
<td>:CALCulate:SEMask:DETector[:FUNCtion]?</td>
</tr>
<tr>
<td><strong>Spectrum Emission Mask Offset Detection Mode</strong></td>
<td>[:SENSe]:SEMask:OFFSET[1]:LIST:DETector &lt;mode_1&gt;[,&lt;mode_2&gt;[,&lt;mode_3&gt;[,&lt;mode_4&gt;[,&lt;mode_5&gt;[,&lt;mode_6&gt;[,&lt;mode_7&gt;[,&lt;mode_8&gt;[,&lt;mode_9&gt;[,&lt;mode_10&gt;[,&lt;mode_11&gt;[[,&lt;mode_12&gt;]]]]]]]]]]]] ]</td>
</tr>
<tr>
<td></td>
<td>[:SENSe]:SEMask:OFFSET[1]:LIST:DETector?</td>
</tr>
<tr>
<td><strong>Spectrum Emission Mask Trace Point</strong></td>
<td>[:SENSe]:SEMask:SWEep[1]:POINts &lt;integer&gt;</td>
</tr>
<tr>
<td></td>
<td>[:SENSe]:SEMask:SWEep[1]:POINts?</td>
</tr>
<tr>
<td><strong>Spectrum Emission Mask Offset Trace Point</strong></td>
<td>[:SENSe]:SEMask:OFFSET[1]:LIST:SWEep[1]:POINts &lt;integer_1&gt;[,&lt;integer_2&gt;[,&lt;integer_3&gt;[,&lt;integer_4&gt;[,&lt;integer_5&gt;[,&lt;integer_6&gt;[,&lt;integer_7&gt;[,&lt;integer_8&gt;[,&lt;integer_9&gt;[,&lt;integer_10&gt;[,&lt;integer_11&gt;[[,&lt;integer_12&gt;]]]]]]]]]]]] ]</td>
</tr>
<tr>
<td></td>
<td>[:SENSe]:SEMask:OFFSET[1]:LIST:SWEep[1]:POINts?</td>
</tr>
<tr>
<td>Function</td>
<td>Device Message</td>
</tr>
<tr>
<td>---------------------------</td>
<td>-------------------------------------------------------------------------------</td>
</tr>
<tr>
<td>Spectrum Emission Mask Reference Filter Type</td>
<td>[:SENSe]:SEMask:FILTER:TYPE_RECT</td>
</tr>
<tr>
<td>Spectrum Emission Mask Reference Roll-off Factor</td>
<td>[:SENSe]:SEMask:[RRC]:ALPHA &lt;real&gt;</td>
</tr>
<tr>
<td></td>
<td>[:SENSe]:SEMask:FILTER[:RRC]:ALPHA?</td>
</tr>
<tr>
<td>Spectrum Emission Mask Offset Start Frequency</td>
<td>[:SENSe]:SEMask:OFFSet[1]:LIST:FREQuency:STARt &lt;freq_1&gt;,&lt;freq_2&gt;,...&lt;freq_12&gt;</td>
</tr>
<tr>
<td></td>
<td>[:SENSe]:SEMask:OFFSet[1]:LIST:FREQuency:STARt?</td>
</tr>
<tr>
<td>Spectrum Emission Mask Offset Stop Frequency</td>
<td>[:SENSe]:SEMask:OFFSet[1]:LIST:FREQuency:STOP &lt;freq_1&gt;,&lt;freq_2&gt;,...&lt;freq_12&gt;</td>
</tr>
<tr>
<td></td>
<td>[:SENSe]:SEMask:OFFSet[1]:LIST:FREQuency:STOP?</td>
</tr>
<tr>
<td>Spectrum Emission Mask Offset Integrate Bandwidth</td>
<td>[:SENSe]:SEMask:OFFSet[1]:LIST:BANDwidth[1]:INTegration &lt;bandwidth_1&gt;,&lt;bandwidth_2&gt;,...&lt;bandwidth_12&gt;</td>
</tr>
<tr>
<td></td>
<td>[:SENSe]:SEMask:OFFSet[1]:LIST:BANDwidth[1]:INTegration?</td>
</tr>
<tr>
<td>Spectrum Emission Mask Offset Integrate Bandwidth Auto/Manual</td>
<td>[:SENSe]:SEMask:OFFSet[1]:LIST:BANDwidth[1]:INTegration:AUTO &lt;switch_1&gt;,&lt;switch_2&gt;,...&lt;switch_12&gt;</td>
</tr>
<tr>
<td></td>
<td>[:SENSe]:SEMask:OFFSet[1]:LIST:BANDwidth[1]:INTegration:AUTO?</td>
</tr>
<tr>
<td>Spectrum Emission Mask Offset Reference Level</td>
<td>[:SENSe]:SEMask:OFFSet[1]:LIST:RLEVel &lt;ampl_1&gt;,&lt;ampl_2&gt;,...&lt;ampl_12&gt;</td>
</tr>
<tr>
<td></td>
<td>[:SENSe]:SEMask:OFFSet[1]:LIST:RLEVel?</td>
</tr>
<tr>
<td>Spectrum Emission Mask Offset Reference Level Auto/Manual</td>
<td>[:SENSe]:SEMask:OFFSet[1]:LIST:RLEVel:AUTO &lt;switch_1&gt;,&lt;switch_2&gt;,...&lt;switch_12&gt;</td>
</tr>
<tr>
<td></td>
<td>[:SENSe]:SEMask:OFFSet[1]:LIST:RLEVel:AUTO?</td>
</tr>
<tr>
<td>Spectrum Emission Mask Offset On/Off</td>
<td>[:SENSe]:SEMask:OFFSet[1]:LIST:STATE &lt;switch_1&gt;,&lt;switch_2&gt;,...&lt;switch_12&gt;</td>
</tr>
<tr>
<td></td>
<td>[:SENSe]:SEMask:OFFSet[1]:LIST:STATE?</td>
</tr>
</tbody>
</table>
### Table 2.13-1  Device messages for Spectrum Emission Mask measurement (Cont’d)

<table>
<thead>
<tr>
<th>Function</th>
<th>Device Message</th>
</tr>
</thead>
</table>
| **Spectrum Emission Mask Offset Start Frequency Absolute Limit Level** | [:SENSe]:SEMask:OFFSet[1]:LIST:STARt:ABSolute[1]|2
<ampl_1>,<ampl_2>,<ampl_3>,<ampl_4>,<ampl_5>,<ampl_6>,<ampl_7>,<ampl_8>,<ampl_9>,<ampl_10>,<ampl_11>[,<ampl_12>]]] ]

| **Spectrum Emission Mask Offset Stop Frequency Absolute Limit Level** | [:SENSe]:SEMask:OFFSet[1]:LIST:STOP:ABSolute[1]|2
<ampl_1>,<ampl_2>,<ampl_3>,<ampl_4>,<ampl_5>,<ampl_6>,<ampl_7>,<ampl_8>,<ampl_9>,<ampl_10>,<ampl_11>[,<ampl_12>]]] ]

| **Spectrum Emission Mask Offset Start Frequency Limit Level** | [:SENSe]:SEMask:OFFSet[1]:LIST:STARt:RCARrier
<ampl_1>,<ampl_2>,<ampl_3>,<ampl_4>,<ampl_5>,<ampl_6>,<ampl_7>,<ampl_8>,<ampl_9>,<ampl_10>,<ampl_11>[,<ampl_12>]]] ]
| :CALCulate:SEMask:OFFSet[1]:LIST:STARt:RCARrier? |

| **Spectrum Emission Mask Offset Stop Frequency Limit Level** | [:SENSe]:SEMask:OFFSet[1]:LIST:STOP:RCARrier
<ampl_1>,<ampl_2>,<ampl_3>,<ampl_4>,<ampl_5>,<ampl_6>,<ampl_7>,<ampl_8>,<ampl_9>,<ampl_10>,<ampl_11>[,<ampl_12>]]] ]
| :CALCulate:SEMask:OFFSet[1]:LIST:STOP:RCARrier? |
### Table 2.13-1  Device messages for Spectrum Emission Mask measurement (Cont’d)

<table>
<thead>
<tr>
<th>Function</th>
<th>Device Message</th>
</tr>
</thead>
</table>
| **Spectrum Emission Mask Fail Logic** | [:SENSe]:SEMask:LOGic:OFFSet[1]:LIST:TEST  
  <logic_1>,<logic_2>,<logic_3>,<logic_4>,<logic_5>,<logic_6>,<logic_7>,<logic_8>,<logic_9>,<logic_10>,<logic_11>,<logic_12>]  
  [:SENSe]:SEMask:LOGic:OFFSet[1]:LIST:TEST? |
| **Spectrum Emission Mask Configure**  | :CONFigure:SEMask |
| **Spectrum Emission Mask Initiate**   | :INITiate:SEMask |
| **Spectrum Emission Mask Fetch**      | :FETCh:SEMask[n]? |
| **Spectrum Emission Mask Read**       | :READ:SEMask[n]? |
| **Spectrum Emission Mask Measure**    | :MEASure:SEMask[n]? |
| **Spectrum Emission Mask Root Nyquist Filter State** | [:SENSe]:SEMask:FILTer[:RRC][:STATe] ON|OFF|1|0  
  [:SENSe]:SEMask:FILTer[:RRC][:STATe]? |
| **Spectrum Emission Mask Result Type**| DISPlay:SEMask:RESult:TYPE PEAK|MARGin  
  DISPlay:SEMask:RESult:TYPE? |
| **Title Entry**                       | :DISPlay:SEMask:ANNotation:TITLe:DATA <string>  
  :DISPlay:SEMask:ANNotation:TITLe:DATA? |
| **Log Scale Range**                   | :DISPlay:SEMask:WINDow[1]:TRACe:Y[:SCALe]:PDIVision <rel_ampl>  
  :DISPlay:SEMask:WINDow[1]:TRACe:Y[:SCALe]:PDIVision? |
| **Reference Level**                   | :DISPlay:SEMask:VIEW[1]:WINDow[1]:TRACe:Y[:SCALe]:RLEVel <real>  
  :DISPlay:SEMask:VIEW[1]:WINDow[1]:TRACe:Y[:SCALe]:RLEVel? |
| **Page Number**                       | :DISPlay:SEMask:VIEW[1]:WINDow[1]:PAGE:NUMBer <integer>  
  :DISPlay:SEMask:VIEW[1]:WINDow[1]:PAGE:NUMBer? |
| **Trigger Source**                    | :TRIGger:SEMask[:SEQuence]:SOURCE  
  EXTernal[1|2]|EXT2|IMMediate|WIF|RFBurst|VIDeo|SG|BBIF|FRAME |
  :TRIGger[:SEQUence]:SOURCE? |
| **Average Count**                     | [:SENSe]:SEMask:AVERage:COUNt <integer>  
  [:SENSe]:SEMask:AVERage:COUNt? |
| **Storage Mode**                      | [:SENSe]:SEMask:AVERage[:STATe] ON|OFF|1|0  
  [:SENSe]:SEMask:AVERage[:STATe]? |
| **Couple Ref&ATT**                    | [:SENSe]:SEMask:RACouple OFF|ON|0|1  
  [:SENSe]:SEMask:RACouple? |
### Table 2.13-1  Device messages for Spectrum Emission Mask measurement (Cont’d)

<table>
<thead>
<tr>
<th>Function</th>
<th>Device Message</th>
</tr>
</thead>
<tbody>
<tr>
<td>Spectrum Emission Mask Sweep Type Select Rules Real FFT Width Query</td>
<td>[:SENSe]:SEMask:SWEep[1][:TYPE][:AUTO]:RULEs:FFT:RWIDth?</td>
</tr>
<tr>
<td>Spectrum Emission Mask Offset Sweep Type Select Rules Real FFT Width Query</td>
<td>[:SENSe]:SEMask:OFFSet[1]:LIST:SWEep[1][:TYPE][:AUTO]:RULEs:FFT:RWIDth?</td>
</tr>
<tr>
<td>Spectrum Emission Mask Sweep Type Select Rules Real Type Query</td>
<td>[:SENSe]:SEMask:SWEep[1][:TYPE][:AUTO]:RULEs:RTYPE?</td>
</tr>
<tr>
<td>Spectrum Emission Mask Offset Sweep Type Select Rules Real Type Query</td>
<td>[:SENSe]:SEMask:OFFSet[1]:LIST:SWEep[1][:TYPE][:AUTO]:RULEs:RTYPE?</td>
</tr>
</tbody>
</table>
[:SENSe]:SEMask[:STATe] ON|OFF|1|0
Measure Spectrum Emission Mask

Function

This command performs Spectrum Emission Mask measurement.

Command

[:SENSe]:SEMask[:STATe] <switch>

Parameter

<switch> SEM measurement On/Off
ON|1 Sets SEM measurement to On.
OFF|0 Sets SEM measurement to Off.

Example of Use

To set SEM measurement to On.
SEM ON

[:SENSe]:SEMask[:STATe]?
Measure Spectrum Emission Mask Query

Function

This command queries the On/Off state for the Spectrum Emission Mask measurement setting.

Command

[:SENSe]:SEMask[:STATe]?

Parameter

<switch> SEM measurement On/Off
1 On
0 Off

Example of Use

To query the On/Off state for the SEM measurement setting.
SEM?
> 1
[:SENSe]:SEMask:OFFSet[1]:SIDE BOTH|POSitive|NEGative
Spectrum Emission Mask Limit Side

Function

This command selects the judgment target area for the Spectrum Emission Mask measurement.
This command selects an area

Command

[:SENSe]:SEMask:OFFSet[1]:SIDE <side>

Parameter

<table>
<thead>
<tr>
<th>&lt;side&gt;</th>
<th>Judgment target area</th>
</tr>
</thead>
<tbody>
<tr>
<td>BOTH</td>
<td>Upper/Lower offset</td>
</tr>
<tr>
<td>POSitive</td>
<td>Upper offset</td>
</tr>
<tr>
<td>NEGative</td>
<td>Lower offset</td>
</tr>
</tbody>
</table>

Example of Use

To set the upper offset as the judgment target area.
SEM:OFFS:SIDE POS
[SENSe]:SEM:OFFSet[1]:SIDE?
Spectrum Emission Mask Limit Side Query

Function
This command queries the judgment target area for the Spectrum Emission Mask measurement.

Query
[:SENSe]:SEM:OFFSet[1]:SIDE?

Response
<side>

Parameter
<side>                Judgment target area
  BOTH                Upper/Lower offset
  POS                 Upper offset
  NEG                 Lower offset

Example of Use
To query the judgment target area.
SEM:OFFS:SIDE?
> POS
[:SENSe]:SEMask:TYPE TPRef|PKRef|FIX

Spectrum Emission Mask Reference Type

Function
This command sets the reference for Spectrum Emission Mask measurement.

Command
[:SENSe]:SEMask:TYPE <type>

Parameter
<type> Type of reference
TPRef Uses the reference power as the integral power in Channel BW.
PKRef Uses the reference power as the peak power in Channel BW.
FIX Uses the reference power as the fixed value.

Example of Use
To set the reference power to the integral power in Channel BW.
SEM:TYPE TPR

Related command
This command has the same function as the following command.
:CALCulate:SEMask:TYPE TPRef|PKRef|FIX
[:SENSe]:SEMask:TYPE?
Spectrum Emission Mask Reference Type Query

Function
This command queries the reference power type for Spectrum Emission Mask measurement.

Query
[:SENSe]:SEMask:TYPE?

Response
<type>

Parameter
<type> Type of reference
TPR Uses the reference power as the integral power in Channel BW.
PKR Uses the reference power as the peak power in Channel BW.
FIX Uses the reference power as the fixed value.

Example of Use
To query the reference power type.
SEM:TYPE?
> TPR

Related command
This command has the same function as the following command.
:CALCulate:SEMask:TYPE?
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:CALCulate:SEMask:TYPE TPRef|PKRef|FIX
Spectrum Emission Mask Reference Type

Function
This command sets the reference for Spectrum Emission Mask measurement.

Command
:CALCulate:SEMask:TYPE <type>

Parameter

   <type>                   Type of reference
TPRef                    Uses the reference power as the integral power in Channel BW.
PKRef                    Uses the reference power as the peak power in Channel BW.
FIX                      Uses the reference power as the fixed value.

Example of Use
To set the reference power to the integral power in Channel BW.
CALC:SEM:TYPE TPR

Related command
This command has the same function as the following command.
[:SENSe]:SEMask:TYPE TPRef|PKRef|FIX
:CALCulate:SEMask:TYPE?
Spectrum Emission Mask Reference Type Query

Function
This command queries the reference power type for Spectrum Emission
Mask measurement.

Query
:CALCulate:SEMask:TYPE?

Response
<type>

Parameter
<type> Type of reference
TPR Uses the reference power as the integral power
in Channel BW.
PKR Uses the reference power as the peak power in
Channel BW.
FIX Uses the reference power as the fixed value.

Example of Use
To query the reference power type.
CALC:SEM:TYPE?
> TPR

Related command
This command has the same function as the following command.
[:SENSe]:SEMask:TYPE?
[:SENSe]:SEMask:CARRier[:POWer] <ampl>

Spectrum Emission Mask Reference Power

Function

This command sets the reference power for Spectrum Emission Mask measurement.

Command

[:SENSe]:SEMask:CARRier[:POWer] <ampl>

Parameter

<ampl> Reference power
Range –200 to 200 dBm
Resolution 0.01 dB
Suffix code DBM,DM
dBm is used when omitted.

Details

This command is not available when Reference Mode is set to either of the following:
• Channel
• Peak

Example of Use

To set the reference power to −10 dBm.
SEM:CARR −10

Related command

This command has the same function as the following command.
:CALCulate:SEMask:CARRier[:POWer] <ampl>
[:SENSe]:SEMask:CARRier[:POWer]?  
Spectrum Emission Mask Reference Power Query

Function
This command queries the reference power for Spectrum Emission Mask measurement.

Query
[:SENSe]:SEMask:CARRier[:POWer]?

Response
<ampl>

Parameter
<ampl>  
Reference power
Range –200 to 200 dBm
Resolution 0.01 dB
Suffix code None. Value is returned in dBm units.

Details
This command is not available when Reference Mode is set to either of the following:
• Channel
• Peak

Example of Use
To query the reference power.
SEM:CARR?
> -10.00

Related command
This command has the same function as the following command.
:CALCulate:SEMask:CARRier[:POWer]?
**:CALCulate:SEMask:CARRier[:POWer] <ampl>**

**Spectrum Emission Mask Reference Power**

**Function**

This command sets the reference power for Spectrum Emission Mask measurement.

**Command**

`:CALCulate:SEMask:CARRier[:POWer] <ampl>`

**Parameter**

- `<ampl>`: Reference power
  - Range: –200 to 200 dBm
  - Resolution: 0.01 dB
  - Suffix code: DBM, DM
    - dBm is used when omitted.

**Details**

This command is not available when Reference Mode is set to either of the following:
- Channel
- Peak

**Example of Use**

To set the reference power to –10 dBm.

CALC:SEM:CARR -10

**Related command**

This command has the same function as the following command.

[:SENSe]:SEMask:CARRier[:POWer] <ampl>
:CALCulate:SEM:Mask:CARRier[:POWer]?
Spectrum Emission Mask Reference Power Query

Function
This command queries the reference power for Spectrum Emission Mask measurement.

Query
:CALCulate:SEM:Mask:CARRier[:POWer]?

Response
<ampl>

Parameter
<ampl> Reference power
   Range       –200 to 200 dBm
   Resolution  0.01 dB
   Suffix code None. Value is returned in dBm units.

Details
This command is not available when Reference Mode is set to either of the following:
   • Channel
   • Peak

Example of Use
To query the reference power.
CALC:SEM:CARR?
> -10.00

Related command
This command has the same function as the following command.
[:SENSe]:SEM:Mask:CARRier[:POWer]?
[:SENSe]:SEM:Mask:Bandwidth[1]:Chanel:INTEGRation <bandwidth>

Spectrum Emission Mask Integrate Bandwidth

**Function**

This command sets the measurement bandwidth of the reference power for Spectrum Emission Mask measurement.

**Command**

[:SENSe]:SEM:Mask:Bandwidth[1]:Chanel:INTEGRation <bandwidth>

**Parameter**

- **<bandwidth>**
  - Measurement bandwidth of reference power
  - **Range**: 1000 to 200000000 Hz
  - **Resolution**: 1 Hz
  - **Suffix code**: HZ,KHZ,KZ,MHZ,MZ,GHz,GZ
  - Hz is used when omitted.

**Example of Use**

To set the measurement bandwidth of the reference power to 5 MHz.

SEM:Band:Chan 5MHZ
2.13 Spectrum Emission Mask

[:SENSe]:SEMask:BANDwidth[1]:CHANnel|INTegration?
Spectrum Emission Mask Integrate Bandwidth Query

Function
This command queries the measurement bandwidth of the reference power for Spectrum Emission Mask measurement.

Query
[:SENSe]:SEMask:BANDwidth[1]:CHANnel|:INTegration?

Response
<bandwidth>

Parameter
<bandwidth> Measurement bandwidth of reference power
Range 1000 to 200000000 Hz
Resolution 1 Hz
Suffix code None. Value is returned in Hz units.

Example of Use
To query the measurement bandwidth of the reference power.
SEM:BAND:CHAN?
> 5000000
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[:SENSe]:SEMask:ATTenuation <rel_ampl>|AUTO
Spectrum Emission Mask Attenuator

Function

This command sets the attenuation when measuring the reference power for Spectrum Emission Mask measurement.

Command

[:SENSe]:SEMask:ATTenuation <rel_ampl>|AUTO

Parameter

<rel_ampl> Attenuation when measuring the reference power
Range 0 to 60 dB
Resolution

[MS269xA], [MS2850A]
2 dB

[MS2830A], [MS2840A]
2 dB or 10 dB

Refer to “Table 2.4.2-3 Resolution of Input Attenuator” in the MS2830A/MS2840A/MS2850A Signal Analyzer Operation Manual (Spectrum Analyzer Function Operation).

Suffix code DB, dB is used when omitted.
AUTO Sets attenuation automatically.

Details

The setting range of this function is limited depending on the settings of other parameters. Refer to the MS2690A/MS2691A/MS2692A Signal Analyzer Operation Manual (Spectrum Analyzer Function Operation) or MS2830A/MS2840A/MS2850A Signal Analyzer Operation Manual (Spectrum Analyzer Function Operation) for details.

Example of Use

To set the attenuation when measuring the reference power to 10 dB.
SEM:ATT 10DB
[:SENSe]:SEMask:ATTenuation?
Spectrum Emission Mask Attenuator Query

Function
This command queries the attenuation when measuring the reference power for Spectrum Emission Mask measurement.

Command
[:SENSe]:SEMask:ATTenuation?

Response
<rel_ampl>

Parameter
<rel_ampl> Attenuation when measuring the reference power
Range 0 to 60 dB
Resolution
[MS269xA], [MS2850A]
2 dB
[MS2830A], [MS2840A]
2 dB or 10 dB
Refer to “Table 2.4.2-3 Resolution of Input Attenuator” in the MS2830A/MS2840A/MS2850A Signal Analyzer Operation Manual (Spectrum Analyzer Function Operation).
Suffix code None. Value is returned in dB units.

Details
The setting range of this function is limited depending on the settings of other parameters. Refer to the MS2690A/MS2691A/MS2692A Signal Analyzer Operation Manual (Spectrum Analyzer Function Operation) or MS2830A/MS2840A/MS2850A Signal Analyzer Operation Manual (Spectrum Analyzer Function Operation) for details.

Example of Use
To query the attenuation when measuring the reference power.
SEM:ATT?
> 10.00
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[:SENSe]:SEMask:OFFSet[1]:LIST:ATTenuation <rel_ampl_1>|AUTO [.<rel_ampl_2>|AUTO [.<rel_ampl_3>|AUTO [.<rel_ampl_4>|AUTO [.<rel_ampl_5>|AUTO [.<rel_ampl_6>|AUTO [.<rel_ampl_7>|AUTO [.<rel_ampl_8>|AUTO [.<rel_ampl_9>|AUTO [.<rel_ampl_10>|AUTO [.<rel_ampl_11>|AUTO [.<rel_ampl_12>|AUTO]]]]]]]

Spectrum Emission Mask Offset Attenuator

Function

This command sets the attenuation when measuring the offset for Spectrum Emission Mask measurement.

Command

[:SENSe]:SEMask:OFFSet[1]:LIST:ATTenuation <rel_ampl_n>|AUTO

Parameter

<rel_ampl_n>  Attenuation when measuring Offset-n measurement

Range 0 to 60 dB

Resolution

[MS269xA], [MS2850A]

2 dB

[MS2830A], [MS2840A]

2 dB or 10 dB

Refer to “Table 2.4.2-3 Resolution of Input Attenuator” in the MS2830A/MS2840A/MS2850A Signal Analyzer Operation Manual (Spectrum Analyzer Function Operation).

Suffix code DB, dB is used when omitted.

AUTO Sets the attenuation automatically.

Details

The setting range of this function is limited depending on the settings of other parameters. Refer to the MS2690A/MS2691A/MS2692A Signal Analyzer Operation Manual (Spectrum Analyzer Function Operation) or MS2830A/MS2840A/MS2850A Signal Analyzer Operation Manual (Spectrum Analyzer Function Operation) for details.

Example of Use

To set the attenuation of the offset.

SEM:OFFS:LIST:ATT

10DB,10DB,10DB,10DB,10DB,10DB,10DB,10DB,10DB,10DB,10DB,10DB
[:SENSe]:SEMask:OFFSet[1]:LIST:ATTenuation?

Spectrum Emission Mask Offset Attenuator Query

Function

This command sets the attenuation when measuring the offset for Spectrum Emission Mask measurement.

Query

[:SENSe]:SEMask:OFFSet[1]:LIST:ATTenuation?

Response

<rel_ampl_n>

Parameter

<rel_ampl_n> Attenuation when measuring Offset-n measurement

Range 0 to 60 dB

Resolution

[MS269xA], [MS2850A]
2 dB

[MS2830A], [MS2840A]
2 dB or 10 dB

Refer to “Table 2.4.2-3 Resolution of Input Attenuator” in the MS2830A/MS2840A/MS2850A Signal Analyzer Operation Manual (Spectrum Analyzer Function Operation).

Suffix code None. Value is returned in dB units.

Details

The setting range of this function is limited depending on the settings of other parameters. Refer to the MS2690A/MS2691A/MS2692A Signal Analyzer Operation Manual (Spectrum Analyzer Function Operation) or MS2830A/MS2840A/MS2850A Signal Analyzer Operation Manual (Spectrum Analyzer Function Operation) for details.

Example of Use

To query the attenuation of the offset.
SEM:OFFS:LIST:ATT?
> 10,10,10,10,10,10,10,10,10,10,10,10
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[:SENSe]:SEMask:BANDwidth[1]:RESolution] <bandwidth>
Spectrum Emission Mask Resolution Bandwidth

Function
This command sets the resolution bandwidth (RBW) of the reference channel for Spectrum Emission Mask measurement.

Command
[:SENSe]:SEMask:BANDwidth[1]:RESolution] <bandwidth>

Parameter
<bandwidth>  Resolution bandwidth (RBW)

[MS269xA]
Range/Resolution 30 Hz to 3 MHz (1-3 sequence),
50 kHz, 5 MHz, 10 MHz, 20 MHz

[MS2830A], [MS2840A]
Range/Resolution 30 Hz to 3 MHz (1-3 sequence),
500 Hz, 50 kHz, 2 MHz, 5 MHz, 10 MHz, 20 MHz

[MS2850A]
Range/Resolution 30 Hz to 3 MHz (1-3 sequence),
500 Hz, 50 kHz, 2 MHz, 5 MHz

[Common]
Suffix code HZ,KHZ,KZ,MHZ,MZ,GHZ,GZ
Hz is used when omitted.

Details
For MS2830A, MS2840A, RBW 20 MHz or greater is available for
MS2830A-005/105/009/109, MS2840A-005/105/009/109.
The setting range of this function is limited depending on the settings of other parameters. Refer to the MS2690A/MS2691A/MS2692A Signal Analyzer Operation Manual (Spectrum Analyzer Function Operation) or MS2830A/MS2840A/MS2850A Signal Analyzer Operation Manual (Spectrum Analyzer Function Operation) for details.

Example of Use
To set the resolution bandwidth of the reference channel to 3 kHz.
SEM:BAND 3KHZ
2.13 Spectrum Emission Mask

[:SENSe]:SEMask:BANDwidth[1][:RESolution]?
Spectrum Emission Mask Resolution Bandwidth Query

Function

This command queries the resolution bandwidth (RBW) of the reference channel for Spectrum Emission Mask measurement.

Query

[:SENSe]:SEMask:BANDwidth[1][:RESolution]?

Response

<bandwidth>

Parameter

<bandwidth> Resolution bandwidth (RBW)

[MS269xA]
Range/Resolution 30 Hz to 3 MHz (1-3 sequence),
50 kHz, 5 MHz, 10 MHz, 20 MHz

[MS2830A], [MS2840A]
Range/Resolution 30 Hz to 3 MHz (1-3 sequence),
500 Hz, 50 kHz, 2 MHz, 5 MHz, 10 MHz, 20 MHz

[MS2850A]
Range/Resolution 30 Hz to 3 MHz (1-3 sequence),
500 Hz, 50 kHz, 2 MHz, 5 MHz

[Common]
Suffix code None. Value is returned in Hz units.

Details

For MS2830A, MS2840A, RBW 20 MHz or greater is only available for MS2830A-005/105/007/009/109, MS2840A-005/105/009/109.
The setting range of this function is limited depending on the settings of other parameters. Refer to the MS2690A/MS2691A/MS2692A Signal Analyzer Operation Manual (Spectrum Analyzer Function Operation) or MS2830A/MS2840A/MS2850A Signal Analyzer Operation Manual (Spectrum Analyzer Function Operation) for details.

Example of Use

To query the resolution bandwidth (RBW) of the reference channel.
SEM:BAND?
> 3000
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[:SENSe]:SEMask:BANDwidth[1][::RESolution]:AUTO ON|OFF|1|0
Spectrum Emission Mask Resolution Bandwidth Auto/Manual

Function
This command enables/disables the automatic resolution bandwidth (RBW) setting function for the reference channel for Spectrum Emission Mask measurement.

Command
[:SENSe]:SEMask:BANDwidth[1][::RESolution]:AUTO <switch>

Parameter

<switch>  
<table>
<thead>
<tr>
<th>Automatic resolution bandwidth (RBW) setting function On/Off state</th>
</tr>
</thead>
<tbody>
<tr>
<td>ON</td>
</tr>
<tr>
<td>OFF</td>
</tr>
</tbody>
</table>

Details
The setting range of this function is limited depending on the settings of other parameters. Refer to the MS2690A/MS2691A/MS2692A Signal Analyzer Operation Manual (Spectrum Analyzer Function Operation) or MS2830A/MS2840A/MS2850A Signal Analyzer Operation Manual (Spectrum Analyzer Function Operation) for details.

Example of Use
To enable the automatic resolution bandwidth setting function for the reference channel.
SEM:BAND:AUTO ON
[:SENSe]:SEMask:BANDwidth[1][:RESolution]:AUTO?
Spectrum Emission Mask Resolution Bandwidth Auto/Manual Query

Function
This command queries the On/Off state of the automatic resolution bandwidth (RBW) setting function for the reference channel for Spectrum Emission Mask measurement.

Query
[:SENSe]:SEMask:BANDwidth[1][:RESolution]:AUTO?

Response
<switch>

Parameter
<switch>  Automatic resolution bandwidth (RBW) setting function On/Off state
  1  Automatic resolution bandwidth setting function is enabled.
  0  Automatic resolution bandwidth setting function is disabled.

Details
The setting range of this function is limited depending on the settings of other parameters. Refer to the MS2690A/MS2691A/MS2692A Signal Analyzer Operation Manual (Spectrum Analyzer Function Operation) or MS2830A/MS2840A/MS2850A Signal Analyzer Operation Manual (Spectrum Analyzer Function Operation) for details.

Example of Use
To query the On/Off state of the automatic resolution bandwidth (RBW) setting function for the reference channel.
SEM:BAND:AUTO?
> 1
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[:SENSe]:SEMask:OFFSet[1]:LIST:BANDwidth[1]:RESolution
<bandwidth_1>[,<bandwidth_2>[,<bandwidth_3>[,<bandwidth_4>[,<bandwidth_5>[,<bandwidth_6>[,<bandwidth_7>[,<bandwidth_8>[,<bandwidth_9>[,<bandwidth_10>[,<bandwidth_11>[,<bandwidth_12>]]]]]]]]]]]

Spectrum Emission Mask Offset Resolution Bandwidth

Function

This command sets the resolution bandwidth (RBW) of the offset for Spectrum Emission Mask measurement.

Command

[:SENSe]:SEMask:OFFSet[1]:LIST:BANDwidth[1]:RESolution
<bandwidth_n>

Parameter

<bandwidth_n>  Resolution bandwidth (RBW) of Offset-n

[MS269xA]
Range/Resolution 30 Hz to 3 MHz (1-3 sequence),
50 kHz, 5 MHz, 10 MHz, 20 MHz

[MS2830A], [MS2840A]
Range/Resolution 30 Hz to 3 MHz (1-3 sequence),
500 Hz, 50 kHz, 2 MHz, 5 MHz, 10 MHz, 20 MHz

[MS2850A]
Range/Resolution 30 Hz to 3 MHz (1-3 sequence),
500 Hz, 50 kHz, 2 MHz, 5 MHz, 10 MHz

[Common]
Suffix code HZ,KHZ,KZ,MHZ,MZ,GHZ,GZ
Hz is used when omitted.

Details

For MS2830A, MS2840A, RBW 20 MHz or greater is only available for MS2830A-005/105/007/009/109, MS2840A-005/105/009/109.
The setting range of this function is limited depending on the settings of other parameters. Refer to the MS2690A/MS2691A/MS2692A Signal Analyzer Operation Manual (Spectrum Analyzer Function Operation) or MS2830A/MS2840A/MS2850A Signal Analyzer Operation Manual (Spectrum Analyzer Function Operation) for details.

Example of Use

To set the resolution bandwidth of the offset.
SEM:OFFS:LIST:BAND
30KHZ,30KHZ,30KHZ,1MHZ,1MHZ,1MHZ,30KHZ,30KHZ,30KHZ,1MHZ,1MHZ,1MHZ
2.13 Spectrum Emission Mask

[:SENSe]:SEMask:OFFSet[1]:LIST:BANDwidth[1][:RESolution]?
Spectrum Emission Mask Offset Resolution Bandwidth Query

Function
This command queries the resolution bandwidth (RBW) of the offset for Spectrum Emission Mask measurement.

Query
[:SENSe]:SEMask:OFFSet[1]:LIST:BANDwidth[1][:RESolution]?

Response
<bandwidth_n>

Parameter
<bandwidth_n> Resolution bandwidth (RBW) of Offset-n

[MS269xA]
Range/Resolution 30 Hz to 3 MHz (1-3 sequence),
50 kHz, 5 MHz, 10 MHz, 20 MHz

[MS2830A], [MS2840A]
Range/Resolution 30 Hz to 3 MHz (1-3 sequence),
500 Hz, 50 kHz, 2 MHz, 5 MHz, 10 MHz, 20 MHz

[MS2850A]
Range/Resolution 30 Hz to 3 MHz (1-3 sequence),
500 Hz, 50 kHz, 2 MHz, 5 MHz, 10 MHz

[Common]
Suffix code None. Value is returned in Hz units.

Details
For MS2830A, MS2840A, RBW 20 MHz or greater is only available for MS2830A-005/105/007/009/109, MS2840A-005/105/009/109.
The setting range of this function is limited depending on the settings of other parameters. Refer to the MS2690A/MS2691A/MS2692A Signal Analyzer Operation Manual (Spectrum Analyzer Operation) or MS2830A/MS2840A/MS2850A Signal Analyzer Operation Manual (Spectrum Analyzer Operation) for details.

Example of Use
To query the resolution bandwidth of the offset.
SEM:OFFS:LIST:BAND?
>
30000,30000,30000,1000000,1000000,1000000,30000,30000,30000,1000000,1000000,1000000
This command enables/disables the automatic resolution bandwidth (RBW) setting function for the offset during Spectrum Emission Mask measurement.

Command

`[:SENSe]:SEM:OFFSet[1]:LIST:BANDwidth[1]:RESolution]:AUTO <switch_n>`

Parameter

`<switch_n>`

- **ON|1** Enables the automatic resolution bandwidth setting function.
- **OFF|0** Disables the automatic resolution bandwidth setting function.

Details

The setting range of this function is limited depending on the settings of other parameters. Refer to the MS2690A/MS2691A/MS2692A Signal Analyzer Operation Manual (Spectrum Analyzer Function Operation) or MS2830A/MS2840A/MS2850A Signal Analyzer Operation Manual (Spectrum Analyzer Function Operation) for details.

Example of Use

To enable the automatic resolution bandwidth setting function for the offset.

`SEM:OFFS:LIST:BAND:AUTO`

ON, ON, ON, ON, ON, ON, ON, ON, ON
[:SENSe]:SEM:OFFSet[1]:LIST:BANDwidth[1][:RESolution]:AUTO?
Spectrum Emission Mask Offset Resolution Bandwidth Auto/Manual Query

Function

This command queries the On/Off state of the automatic resolution bandwidth (RBW) setting function when measuring the offset for Spectrum Emission Mask measurement automatically.

Query

[:SENSe]:SEM:OFFSet[1]:LIST:BANDwidth[1][:RESolution]:AUTO?

Response

<switch_n>

Parameter

<switch_n>  
Automatic resolution bandwidth setting function when measuring Offset-n
   1  Enables the automatic resolution bandwidth setting function.
   0  Disables the automatic resolution bandwidth setting function.

Details

The setting range of this function is limited depending on the settings of other parameters. Refer to the MS2690A/MS2691A/MS2692A Signal Analyzer Operation Manual (Spectrum Analyzer Function Operation) or MS2830A/MS2840A/MS2850A Signal Analyzer Operation Manual (Spectrum Analyzer Function Operation) for details.

Example of Use

To query the automatic resolution bandwidth setting function On/Off state for the offset.
SEM:OFFS:LIST:BAND:AUTO?
> 1,1,1,1,1,1,1,1,1,1,1,1
[:SENSe]:SEMask:BANDwidth[1]:VIDeo <bandwidth>|OFF
Spectrum Emission Mask Video Bandwidth

Function

This command sets the video bandwidth (VBW) when measuring the reference power for Spectrum Emission Mask measurement.

Command

[:SENSe]:SEMask:BANDwidth[1]:VIDeo <bandwidth>|OFF

Parameter

<bandwidth>  Video bandwidth (VBW)
Range/Resolution  1 Hz to 10 MHz (1-3 sequence), 5 kHz
Suffix code  HZ,KHZ,KZ,MHZ,MZ,GHZ,GZ
Hz is used when omitted.

OFF  Sets VBW to Off.

Details

This command is fixed to Auto and cannot be set if the detection mode of the measurement target is set to the following.

- RMS

The setting range of this function is limited depending on the settings of other parameters. Refer to the MS2690A/MS2691A/MS2692A Signal Analyzer Operation Manual (Spectrum Analyzer Function Operation) or MS2830A/MS2840A/MS2850A Signal Analyzer Operation Manual (Spectrum Analyzer Function Operation) for details.

Example of Use

To set the video bandwidth of the reference power to 3 kHz.
SEM:BAND:VID 3KHZ
[:SENSe]:SEMask:BANDwidth[1]:VIDeo?
Spectrum Emission Mask Video Bandwidth Query

Function
This command queries the video bandwidth (VBW) when measuring the reference power for Spectrum Emission Mask measurement.

Query
[:SENSe]:SEMask:BANDwidth[1]:VIDeo?

Response
<bandwidth>

Parameter

<table>
<thead>
<tr>
<th>Parameter</th>
<th>Description</th>
</tr>
</thead>
<tbody>
<tr>
<td>&lt;bandwidth&gt;</td>
<td>Video bandwidth (VBW)</td>
</tr>
<tr>
<td>Range/Resolution</td>
<td>1 Hz to 10 MHz (1-3 sequence), 5 kHz</td>
</tr>
<tr>
<td>OFF</td>
<td>Sets VBW to Off.</td>
</tr>
<tr>
<td>Suffix code</td>
<td>None. Value is returned in Hz units. This command returns OFF, when the VBW is set to Off.</td>
</tr>
</tbody>
</table>

Details
This command is fixed to Auto and cannot be set, when Detection is set to the following:
- RMS

The setting range of this function is limited depending on the settings of RBW. Refer to the *MS2690A/MS2691A/MS2692A Signal Analyzer Operation Manual (Spectrum Analyzer Function Operation)* or *MS2830A/MS2840A/MS2850A Signal Analyzer Operation Manual (Spectrum Analyzer Function Operation)* for details.

Example of Use
To query the video bandwidth when measuring the reference power.
SEM:BAND:VID?
> 3000
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[:SENSe]:SEMask:OFFSet[1]:LIST:BANDwidth[1]:VIDeo <bandwidth_1>|OFF [,<bandwidth_2>|OFF [,<bandwidth_3>|OFF [,<bandwidth_4>|OFF [,<bandwidth_5>|OFF [,<bandwidth_6>|OFF [,<bandwidth_7>|OFF [,<bandwidth_8>|OFF [,<bandwidth_9>|OFF [,<bandwidth_10>|OFF [,<bandwidth_11>|OFF [,<bandwidth_12>|OFF]]]]]]]]]

Spectrum Emission Mask Offset Video Bandwidth

Function

This command sets the video bandwidth (VBW) of the offset for Spectrum Emission Mask measurement.

Command

[:SENSe]:SEMask:OFFSet[1]:LIST:BANDwidth[1]:VIDeo <bandwidth_n>

Parameter

<bandwidth_n> Video bandwidth of Offset-n (VBW)
Range/Resolution 1 Hz to 10 MHz (1-3 sequence), 5 kHz
Suffix code HZ,KHZ,KZ,MHZ,MZ,GHZ,GZ
Hz is used when omitted.

OFF Sets VBW to Off.

Details

The setting range of this function is limited depending on the settings of RBW. Refer to the MS2690A/MS2691A/MS2692A Signal Analyzer Operation Manual (Spectrum Analyzer Function Operation) or MS2830A/MS2840A/MS2850A Signal Analyzer Operation Manual (Spectrum Analyzer Function Operation) for details.

Example of Use

To set the video bandwidth of the offset.
SEMs:OFFS:LIST:BAND:VID
3KHZ,3KHZ,3KHZ,10KHZ,10KHZ,10KHZ,3KHZ,3KHZ,10KHZ,10
KHZ,10KHZ
This command queries the video bandwidth (VBW) of the offset for Spectrum Emission Mask measurement.

### Query

```
[:SENSe]:SEMask:OFFSet[1]:LIST:BANDwidth[1]:VIDeo?
```

### Response

```
<bandwidth_n>
```

### Parameter

- `<bandwidth_n>`: Video bandwidth of Offset-n (VBW)
  - **Range/Resolution**: 1 Hz to 10 MHz (1-3 sequence), 5 kHz
  - **OFF**: Sets VBW to Off.
  - **Suffix code**: None. Value is returned in Hz units. This command returns OFF, when the VBW is set to Off.

### Details

This command is fixed to Auto and cannot be set, when Detection is set to the following:
- RMS

The setting range of this function is limited depending on the settings of RBW. Refer to the MS2690A/MS2691A/MS2692A Signal Analyzer Operation Manual (Spectrum Analyzer Function Operation) or MS2830A/MS2840A/MS2850A Signal Analyzer Operation Manual (Spectrum Analyzer Function Operation) for details.

### Example of Use

To query the video bandwidth of the offset.

```
SEM:OFFS:LIST:BAND:VID?
>
3000,3000,3000,10000,10000,10000,3000,3000,3000,10000,10000
```
Chapter 2  SCPI Device Message Details

[:SENSe]:SEMask:BANDwidth[1]:VIDeo:AUTO ON|OFF|1|0
Spectrum Emission Mask Video Bandwidth Auto/Manual

Function
This command enables/disables the automatic video bandwidth (VBW) setting function when measuring the reference power for Spectrum Emission Mask measurement.

Command
[:SENSe]:SEMask:BANDwidth[1]:VIDeo:AUTO <switch>

Parameter

<table>
<thead>
<tr>
<th>&lt;switch&gt;</th>
<th>Automatic video bandwidth setting function</th>
</tr>
</thead>
<tbody>
<tr>
<td>ON</td>
<td>1</td>
</tr>
<tr>
<td>OFF</td>
<td>0</td>
</tr>
</tbody>
</table>

Details
The setting range of this function is limited depending on the settings of RBW. Refer to the MS2690A/MS2691A/MS2692A Signal Analyzer Operation Manual (Spectrum Analyzer Function Operation) or MS2830A/MS2840A/MS2850A Signal Analyzer Operation Manual (Spectrum Analyzer Function Operation) for details.

Example of Use
To enable the automatic video bandwidth setting function when measuring the reference power.
SEM:BAND:VID:AUTO ON
[:SENSe]:SEMask:BANDwidth[1]:VIDeo:AUTO?

Spectrum Emission Mask Video Bandwidth Auto/Manual Query

Function

This command queries the On/Off state of the automatic resolution bandwidth (RBW) setting function when measuring the reference power for Spectrum Emission Mask measurement.

Query

[:SENSe]:SEMask:BANDwidth[1]:VIDeo:AUTO?

Response

<switch>

Parameter

<switch>  Automatic resolution bandwidth setting On/Off state
1  Automatic resolution bandwidth setting function is enabled.
0  Automatic resolution bandwidth setting function is disabled.

Details

This command is fixed to Auto and cannot be set, when Detection is set to the following:
- RMS

The setting range of this function is limited depending on the settings of RBW. Refer to the MS2690A/MS2691A/MS2692A Signal Analyzer Operation Manual (Spectrum Analyzer Function Operation) or MS2830A/MS2840A/MS2850A Signal Analyzer Operation Manual (Spectrum Analyzer Function Operation) for details.

Example of Use

To query the On/Off state of the automatic video bandwidth setting function when measuring the reference power.

SEM:BAND:VID:AUTO?
> 1
This command enables/disables the automatic video bandwidth (VBW) setting function for the offset during Spectrum Emission Mask measurement.

**Command**

[:SENSe]:SEMask:OFFSet[1]:LIST:BANDwidth[1]:VIDeo:AUTO <switch_n>

**Parameter**

- **<switch_n>**
  - **ON**|1
    - Enables the automatic video bandwidth setting function.
  - **OFF**|0
    - Disables the automatic video bandwidth setting function.

**Details**

The setting range of this function is limited depending on the settings of RBW. Refer to the MS2690A/MS2691A/MS2692A Signal Analyzer Operation Manual (Spectrum Analyzer Function Operation) or MS2830A/MS2840A/MS2850A Signal Analyzer Operation Manual (Spectrum Analyzer Function Operation) for details.

**Example of Use**

To enable the automatic video bandwidth setting function for the offset.

SEM:OFFS:LIST:BAND:VID:AUTO
ON, ON, ON, ON, ON, ON, ON, ON, ON, ON
2.13 Spectrum Emission Mask

[:SENSe]:SEMask:OFFSet[1]:LIST:BANDwidth[1]:VIDeo:AUTO?
Spectrum Emission Mask Offset Video Bandwidth Auto/Manual Query

Function
This command queries the On/Off state of the automatic video bandwidth (VBW) setting function for the offset during Spectrum Emission Mask measurement.

Query
[:SENSe]:SEMask:OFFSet[1]:LIST:BANDwidth[1]:VIDeo:AUTO?

Response
<switch_n>

Parameter
<switch_n> Automatic video bandwidth setting function
1 Automatic video bandwidth setting function is enabled.
0 Automatic video bandwidth setting function is disabled.

Details
The setting range of this function is limited depending on the settings of RBW. Refer to the MS2690A/MS2691A/MS2692A Signal Analyzer Operation Manual (Spectrum Analyzer Function Operation) or MS2830A/MS2840A/MS2850A Signal Analyzer Operation Manual (Spectrum Analyzer Function Operation) for details.

Example of Use
To query the On/Off state of the automatic video bandwidth setting function for the offset.
SEM:OFFS:LIST:BAND:VID:AUTO?
> 1,1,1,1,1,1,1,1,1,1,1,1
[:SENSe]:SEM:Bandwidth[1]:Video:Mode Video|Power

Spectrum Emission Mask Video Bandwidth Mode

Function

This command sets the processing method for the video bandwidth (VBW) when measuring the reference power for Spectrum Emission Mask measurement.

Command

[:SENSe]:SEM:Bandwidth[1]:Video:Mode <method>

Parameter

<table>
<thead>
<tr>
<th>&lt;method&gt;</th>
<th>Processing method for VBW</th>
</tr>
</thead>
<tbody>
<tr>
<td>Video</td>
<td>Normal VBW</td>
</tr>
<tr>
<td>Power</td>
<td>Power VBW</td>
</tr>
</tbody>
</table>

Example of Use

To set the processing method for the video bandwidth when measuring the reference power to Power VBW.

SEM:BAND:VID:MODE POW
This command queries the processing method for the video bandwidth (VBW) when measuring the reference power for Spectrum Emission Mask measurement.

### Query

[:SENSe]:SEM:SEMask:BANDwidth[1]:VID:MODE?

### Response

<method>

### Parameter

- **<method>** Processing method for VBW
  - **VID** Normal VBW
  - **POW** Power VBW

### Details

This command is fixed to Auto and cannot be set, when Detection is set to the following:
- **RMS**

### Example of Use

To set the processing method for the video bandwidth when measuring the reference power to Power VBW.

```plaintext
SEM:SEMask:BAND:VID:MODE?  > POW
```
[:SENSe]:SEMask:OFFSet[1]:LIST:BANDwidth[1]:VIDeo:MODE
<method_1>[,<method_2>[,<method_3>[,<method_4>[,<method_5>[,<method_6>[,<method_7>[,<method_8>[,<method_9>[,<method_10>[,<method_11>[,<method_12>]]]]]]]]]]]

Spectrum Emission Mask Offset Video Bandwidth Mode

Function

This command sets the processing method for the video bandwidth (VBW) of the offset for Spectrum Emission Mask measurement.

Command

[:SENSe]:SEMask:OFFSet[1]:LIST:BANDwidth[1]:VIDeo:MODE
<method_n>

Parameter

<method_n> Processing method for VBW of Offset-n
VIDeo Normal VBW
POWer Power VBW

Example of Use

To set the processing method for the video bandwidth of the offset.
SEM:OFFS:LIST:BAND:VID:MODE
VID,VID,VID,VID,VID,VID,VID,VID,VID,VID,VID,VID,VIDapeutic device message details
[:SENSe]:SEM:OFFSet[1]:LIST:BANDwidth[1]:VIDeo:MODE?
Spectrum Emission Mask Offset Video Bandwidth Mode Query

Function

This command queries the processing method for the video bandwidth (VBW) of the offset for Spectrum Emission Mask measurement.

Query

[:SENSe]:SEM:OFFSet[1]:LIST:BANDwidth[1]:VIDeo:MODE?

Response

<method_n>

Parameter

<method_n> Processing method for VBW of Offset-n
  VID Normal VBW
  POW Power VBW

Details

This command is fixed to Auto and cannot be set, when Detection is set to the following:
  • RMS

Example of Use

To query the processing method for the video bandwidth of the offset.
SEM:OFFS:LIST:BAND:VID:MODE?
> VID,VID,VID,VID,VID,VID,VID,VID,VID,VID
[:SENSe]:SEM:SWEep[1]:TIME <time>

Spectrum Emission Mask Sweep Time

Function

This command sets the sweep time when measuring the reference power for Spectrum Emission Mask measurement.

Command

[:SENSe]:SEM:SWEep[1]:TIME <time>

Parameter

<time>  Sweep time

Range

[MS269xA]  2 ms to 1000 s

[MS2830A]  1 ms to 1000 s

[MS2840A]  1 ms to 1000 s

[MS2850A]  1 ms to 1000 s

Resolution

1 ms (time ≤ 1 s)

0.1 s (1 s < time < 10 s)

1 s (10 s ≤ time)

Suffix code

NS, US, MS, S

S is used when omitted.

Details

The setting range of this function is limited depending on the settings of other parameters. Refer to the MS2690A/MS2691A/MS2692A Signal Analyzer Operation Manual (Spectrum Analyzer Function Operation) or MS2830A/MS2840A/MS2850A Signal Analyzer Operation Manual (Spectrum Analyzer Function Operation) for details.

Example of Use

To set the sweep time when measuring the reference power to 20 ms.

SEM:SWE:TIME 20MS
2.13 Spectrum Emission Mask

[:SENSe]:SEM:SWEll[1]:TIME?
Spectrum Emission Mask Sweep Time Query

Function
This command queries the sweep time when measuring the reference power for Spectrum Emission Mask measurement.

Query
[:SENSe]:SEM:SWEll[1]:TIME?

Response
<time>

Parameter
<time> Sweep time

Range
[MS269xA] 2 ms to 1000 s
[MS2830A] 1 ms to 1000 s
[MS2840A] 1 ms to 1000 s
[MS2850A] 1 ms to 1000 s

Resolution
1 ms (time ≤ 1 s)
0.1 s (1 s < time < 10 s)
1 s (10 s ≤ time)

Suffix code None. Value is returned in S units.

Details
The setting range of this function is limited depending on the settings of other parameters. Refer to the MS2690A/MS2691A/MS2692A Signal Analyzer Operation Manual (Spectrum Analyzer Function Operation) or MS2830A/MS2840A/MS2850A Signal Analyzer Operation Manual (Spectrum Analyzer Function Operation) for details.

Example of Use
To query the sweep time when measuring the reference power.
SEM:SWE:TIME?
> 0.020000
[:SENSe]:SEMask:OFFSet[1]:LIST:SWEep[1]:TIME
Spectrum Emission Mask Offset Sweep Time

Function
This command sets the sweep time of the offset for Spectrum Emission Mask measurement.

Command
[:SENSe]:SEMask:OFFSet[1]:LIST:SWEep[1]:TIME <time_n>

Parameter
<time_n> Sweep time of Offset-n
Range
[MS269xA] 2 ms to 1000 s
[MS2830A] 1 ms to 1000 s
[MS2840A] 1 ms to 1000 s
[MS2850A] 1 ms to 1000 s
Resolution 1 ms (time ≤ 1 s)
0.1 s (1 s < time < 10 s)
1 s (10 s ≤ time)
Suffix code NS,US,MS,S
S is used when omitted.

Details
The setting range of this function is limited depending on the settings of other parameters. Refer to the MS2690A/MS2691A/MS2692A Signal Analyzer Operation Manual (Spectrum Analyzer Function Operation) or MS2830A/MS2840A/MS2850A Signal Analyzer Operation Manual (Spectrum Analyzer Function Operation) for details.

Example of Use
To set the sweep time of the offset.
SEM:OFFS:LIST:SWE:TIME
40MS, 40MS, 40MS, 40MS, 40MS, 40MS, 40MS, 40MS, 40MS, 40MS
2.13 Spectrum Emission Mask

[:SENSe]:SEMask:OFFSet[1]:LIST:SWEep[1]:TIME?
Spectrum Emission Mask Offset Sweep Time Query

Function
This command queries the sweep time for Spectrum Emission Mask measurement.

Query
[:SENSe]:SEMask:OFFSet[1]:LIST:SWEep[1]:TIME?

Response
<time_n>

Parameter
<time_n> Sweep time of Offset-n
Range
[MS269xA] 2 ms to 1000 s
[MS2830A] 1 ms to 1000 s
[MS2840A] 1 ms to 1000 s
[MS2850A] 1 ms to 1000 s
Resolution 1 ms (time ≤ 1 s)
0.1 s (1 s < time < 10 s)
1 s (10 s ≤ time)

Suffix code None. Value is returned in S units.

Details
The setting range of this function is limited depending on the settings of other parameters. Refer to the MS2690A/MS2691A/MS2692A Signal Analyzer Operation Manual (Spectrum Analyzer Operation) or MS2830A/MS2840A/MS2850A Signal Analyzer Operation Manual (Spectrum Analyzer Operation) for details.

Example of Use
To query the sweep time of the offset.
SEM:OFFS:LIST:SWE:TIME?
>
0.040000,0.040000,0.040000,0.040000,0.040000,0.040000,0.040000,0.040000,0.040000,0.040000,0.040000
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[:SENSe]:SEMask:SWEep[1]:TIME:AUTO ON|OFF|1|0
Spectrum Emission Mask Sweep Time Auto/Manual

Function

This command enables/disables the automatic sweep time setting function when measuring the reference power for Spectrum Emission Mask measurement.

Command

[:SENSe]:SEMask:SWEep[1]:TIME:AUTO <switch>

Parameter

<switch>  
ON|1  Enables the automatic sweep time setting function.
OFF|0  Disables the automatic sweep time setting function.

Details

The setting range of this function is limited depending on the settings of other parameters. Refer to the MS2690A/MS2691A/MS2692A Signal Analyzer Operation Manual (Spectrum Analyzer Function Operation)” or MS2830A/MS2840A/MS2850A Signal Analyzer Operation Manual (Spectrum Analyzer Function Operation) for details.

Example of Use

To enable the automatic sweep time setting function when measuring the reference power.
SEM:SWE:TIME:AUTO ON
This command queries the On/Off state of the automatic sweep time setting function when measuring the reference power for Spectrum Emission Mask measurement.

**Query**

[:SENSe]:SEMask:SWEep[1]:TIME:AUTO?

**Response**

<switch>

**Parameter**

<switch>>

1  Automatic sweep time setting function is enabled.
0  Automatic sweep time setting function is disabled.

**Details**

The setting range of this function is limited depending on the settings of other parameters. Refer to the *MS2690A/MS2691A/MS2692A Signal Analyzer Operation Manual (Spectrum Analyzer Function Operation)* or *MS2830A/MS2840A/MS2850A Signal Analyzer Operation Manual (Spectrum Analyzer Function Operation)* for details.

**Example of Use**

To query the automatic sweep time setting function On/Off state when measuring the reference power.

SEM:SWE:TIME:AUTO?

> 1
Chapter 2  SCPI Device Message Details

[:SENSe]:SEMask:OFFSet[1]:LIST:SWEep[1]:TIME:AUTO
<switch_1>[,<switch_2>[,<switch_3>[,<switch_4>[,<switch_5>[,<switch_6>[,<switch_7>[,<switch_8>[,<switch_9>[,<switch_10>[,<switch_11>[,<switch_12]>]]]]]]]]]]]

Spectrum Emission Mask Offset Sweep Time Auto/Manual

Function

This command enables/disables the automatic sweep time setting function for the offset during Spectrum Emission Mask measurement.

Command

[:SENSe]:SEMask:OFFSet[1]:LIST:SWEep[1]:TIME:AUTO
<switch_n>

Parameter

<switch_n>  Automatic sweep time setting function On/Off for Offset-n

ON|1  Enables the automatic sweep time setting function.

OFF|0  Disables the automatic sweep time setting function.

Details

The setting range of this function is limited depending on the settings of other parameters. Refer to the MS2690A/MS2691A/MS2692A Signal Analyzer Operation Manual (Spectrum Analyzer Function Operation) or MS2830A/MS2840A/MS2850A Signal Analyzer Operation Manual (Spectrum Analyzer Function Operation) for details.

Example of Use

To enable the automatic sweep time setting function for the offset.

SEM:OFFS:LIST:SWE:TIME:AUTO
OFF,OFF,OFF,OFF,OFF,OFF,OFF,OFF,OFF,OFF,OFF,OFF
[:SENSe]:SEMask:OFFSet[1]:LIST:SWEep[1]:TIME:AUTO?

Spectrum Emission Mask Offset Sweep Time Auto/Manual Query

Function

This command queries the automatic sweep time setting function On/Off state for the offset during Spectrum Emission Mask measurement.

Query

[:SENSe]:SEMask:OFFSet[1]:LIST:SWEep[1]:TIME:AUTO?

Response

<switch_n>

Parameter

<switch_n>  Automatic sweep time setting function On/Off state for Offset-n
1  Automatic sweep time setting function is enabled.
0  Automatic sweep time setting function is disabled.

Details

The setting range of this function is limited depending on the settings of other parameters. Refer to the MS2690A/MS2691A/MS2692A Signal Analyzer Operation Manual (Spectrum Analyzer Function Operation) or MS2830A/MS2840A/MS2850A Signal Analyzer Operation Manual (Spectrum Analyzer Function Operation) for details.

Example of Use

To query the automatic sweep time setting function On/Off state for the offset.
SEM:OFFS:LIST:SWE:TIME:AUTO?
> 0,0,0,0,0,0,0,0,0,0,0,0
[:SENSe]:SEMask:SWEep[1]:TIME:AUTO:MODE NORMal|FAST

Spectrum Emission Mask Auto Sweep Time Select

Function

This command sets the sweep mode (Normal/Fast) when the automatic sweep time setting function is enabled for measuring of the reference power during Spectrum Emission Mask measurement.

Command

[:SENSe]:SEMask:SWEep[1]:TIME:AUTO:MODE <mode>

Parameter

<mode> Normal/Fast of sweep time
  NORMal Normal sweep mode
  FAST High-speed sweep mode

Example of Use

To set FAST for the sweep mode when the automatic sweep time setting function is enabled for measuring the reference power.

SEM:SWE:TIME:AUTO:MODE FAST
[:SENSe]:SEMask:SWEep[1]:TIME:AUTO:MODE?
Spectrum Emission Mask Auto Sweep Time Select Query

Function
This command queries the sweep mode (Normal/Fast) when the automatic sweep time setting function is enabled for measuring the reference power during Spectrum Emission Mask measurement.

Query
[:SENSe]:SEMask:SWEep[1]:TIME:AUTO:MODE?

Response
<mode>

Parameter
<mode> Normal/Fast of sweep time
NORM Normal sweep mode
FAST Fast sweep mode

Example of Use
To query the sweep mode when the automatic sweep time setting function is enabled for measuring the reference power.
SEM:SWE:TIME:AUTO:MODE?
> FAST
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[:SENSe]:SEMask:OFFSet[1]:LIST:SWEep[1]:TIME:AUTO:MODE
<mode_1>,<mode_2>,<mode_3>,<mode_4>,<mode_5>,<mode_6>,<mode_7>,<mode_8>,<mode_9>,<mode_10>,<mode_11>,<mode_12>
Spectrum Emission Mask Offset Auto Sweep Time Select

Function

This command queries the sweep mode (Normal/Fast) when the automatic sweep time setting function is enabled for the offset during Spectrum Emission Mask measurement.

Command

[:SENSe]:SEMask:OFFSet[1]:LIST:SWEep[1]:TIME:AUTO:MODE
<mode_n>

Parameter

<mode_n>  Normal/Fast of sweep time of Offset-n
NORMal  Normal sweep mode
FAST  High-speed sweep mode

Example of Use

To set the sweep mode when the automatic sweep time setting function is enabled for the offset.

NORM, NORM, NORM, NORM, NORM, NORM, NORM, NORM, NORM, NORM, NORM, NORM
This command queries the sweep mode (Normal/Fast) when the automatic sweep time setting function is enabled for the offset during Spectrum Emission Mask measurement.

**Query**

`[:SENSe]:SEMask:OFFSet[1]:LIST:SWEep[1]:TIME:AUTO:MODE?`

**Response**

`<mode_n>`

**Parameter**

`<mode_n>` Normal/Fast of sweep time of Offset-n

- **NORM** Normal sweep mode
- **FAST** High-speed sweep mode

**Example of Use**

To query the sweep mode when the automatic sweep time setting function is enabled for the offset.

```
> NORM, NORM, NORM, NORM, NORM, NORM, NORM, NORM, NORM, NORM, NORM, NORM
```
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[:SENSe]:SEMask:DETector[:FUNCtion]
NORMal|POSitive|NEGative|SAMPlE|RMS|AVERage
Spectrum Emission Mask Detection Mode

Function

This command selects the detection mode of the waveform pattern when measuring the reference power for Spectrum Emission Mask measurement.

Command

[:SENSe]:SEMask:DETector <mode>

Parameter

<mode>  Detection mode
         NORMal  Simultaneous positive and negative peak detection (Default)
         POSitive  Positive peak detection
         NEGative  Negative peak detection
         SAMPlE  Sample detection
         RMS|AVERage  RMS detection

Example of Use

To set the detection mode when measuring the reference power to positive peak detection.
SEM:DET  POS

Related command

This command has the same function as the following command.
:CALCulate:SEMask:DETector[:FUNCtion]
[:SENSe]:SEMask:DETector[:FUNCtion]?
Spectrum Emission Mask Detection Mode Query

Function

This command queries the detection mode of the waveform pattern when measuring the reference power for Spectrum Emission Mask measurement.

Query

[:SENSe]:SEMask:DETector?

Response

<mode>

Parameter

<mode> Detection mode selection
  NORM Simultaneous positive and negative peak detection
  POS Positive peak detection
  NEG Negative peak detection
  SAMP Sample detection
  RMS|AVER RMS detection

Example of Use

To query the detection mode when measuring the reference power.
SEM:DET?
> POS

Related command

This command has the same function as the following command.
:CALCulate:SEMask:DETector[:FUNCtion]?
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:CALCulate:SEMask:DETection[:FUNCTION]
NORMal|POSitive|NEGative|SAMPle|RMS|AVERage
Spectrum Emission Mask Detection Mode

Function

This command selects the detection mode of the waveform pattern when measuring the reference power for Spectrum Emission Mask measurement.

Command

:CALCulate:SEMask:DETection[:FUNCTION] <mode>

Parameter

<table>
<thead>
<tr>
<th>&lt;mode&gt;</th>
<th>Detection mode selection</th>
</tr>
</thead>
<tbody>
<tr>
<td>NORMal</td>
<td>Simultaneous positive and negative peak detection (Default)</td>
</tr>
<tr>
<td>POSitive</td>
<td>Positive peak detection</td>
</tr>
<tr>
<td>NEGative</td>
<td>Negative peak detection</td>
</tr>
<tr>
<td>SAMPle</td>
<td>Sample detection</td>
</tr>
<tr>
<td>RMS</td>
<td>AVERage</td>
</tr>
</tbody>
</table>

Example of Use

To set the detection mode when measuring the reference power to positive peak detection.
CALC:SEM:DET POS

Related command

This command has the same function as the following command.
[[:SENSe]:SEMask:DETection[:FUNCTION]
:CALCulate:SEMask:DETector[:FUNCtion]?
Spectrum Emission Mask Detection Mode Query

Function

This command queries the detection mode of the waveform pattern when measuring the reference power for Spectrum Emission Mask measurement.

Query

:CALCulate:SEMask:DETector[:FUNCtion]?

Response

<mode>

Parameter

<mode> Detection mode selection
  NORM Simultaneous positive and negative peak detection
  POS Positive peak detection
  NEG Negative peak detection
  SAMP Sample detection
  RMS|AVER RMS detection

Example of Use

To query the detection mode when measuring the reference power.

CALC:SEM:DET?
> POS

Related command

This command has the same function as the following command.

[:SENSe]:SEMask:DETector[:FUNCtion]?
[:SENSe]:SEM:OFFSet[1]:LIST:DETectors
<mode_1>,<mode_2>,<mode_3>,<mode_4>,<mode_5>,<mode_6>,<mode_7>,<mode_8>,<mode_9>,<mode_10>,<mode_11>,<mode_12>
Spectrum Emission Mask Offset Detection Mode

Function
This command selects the detection mode of the waveform pattern of the offset for Spectrum Emission Mask measurement.

Command
[:SENSe]:SEM:OFFSet[1]:LIST:DETector <mode_n>

Parameter
<mode_n> Detection mode selection for Offset-n
 NORMal Simultaneous positive and negative peak detection (Default)
 POSitive Positive peak detection
 NEGative Negative peak detection
 SAMPlE Sample detection
 RMS|AVERage RMS detection

Example of Use
To set the detection mode of the offset.
SEM:OFFS:LIST:DET
POS,POS,POS,POS,POS,POS,POS,POS,POS,POS,POS,POS
[:SENSe]:SEMask:OFFSet[1]:LIST:DETector?

Spectrum Emission Mask Offset Detection Mode Query

Function

This command queries the detection mode of the waveform pattern of the offset for Spectrum Emission Mask measurement.

Query

[:SENSe]:SEMask:OFFSet[1]:LIST:DETector?

Response

<mode_n>

Parameter

<mode_n> Detection mode selection for Offset-n
  NORM Simultaneous positive and negative peak detection
  POS Positive peak detection
  NEG Negative peak detection
  SAMP Sample detection
  RMS|AVER RMS detection

Example of Use

To query the detection of the offset.

SEM:OFFS:LIST:DET?

> POS,POS,POS,POS,POS,POS,POS,POS,POS,POS,POS,POS
[:SENSe]:SEM:DET:OFF[:FUNC]
NORMal|POSitive|NEGative|SAMPLE|RMS|AVERage
Spectrum Emission Mask Offset Detection Mode

Function

This command selects the detection mode of the waveform pattern of the offset for Spectrum Emission Mask measurement in a lump sum.

Command

[:SENSe]:SEM:DET:OFF[:FUNC] <mode>

Parameter

<mode>

<table>
<thead>
<tr>
<th>Detection mode selection for all offsets</th>
</tr>
</thead>
<tbody>
<tr>
<td>NORMal</td>
</tr>
<tr>
<td>POSitive</td>
</tr>
<tr>
<td>NEGative</td>
</tr>
<tr>
<td>SAMPLE</td>
</tr>
<tr>
<td>RMS</td>
</tr>
</tbody>
</table>

Example of Use

To set the detection mode of the offset.

SEM:DET:OFFS POS
2.13 Spectrum Emission Mask

[:SENSe]:SEM:SWEp[1]:PONts <integer>
Spectrum Emission Mask Trace Point

Function
This command selects the number of frequency display points when measuring the reference power for Spectrum Emission Mask measurement.

Command
[:SENSe]:SEM:SWEp[1]:PONts <integer>

Parameter
<integer> Number of frequency display points
Range 11, 21, 41, 51, 101, 201, 251, 401, 501, 1001, 2001, 5001, 10001, 30001 (MS269xA, MS2830A, MS2840A Only)
Suffix code None

Example of Use
To set the number of frequency display points when measuring the reference power to 2001.
SEM:SWE:POIN 2001
[:SENSe]:SEMask:SWEep[1]:POINts?
Spectrum Emission Mask Trace Point Query

Function

This command queries the number of frequency display points when measuring the reference power for Spectrum Emission Mask measurement.

Query

[:SENSe]:SEMask:SWEep[1]:POINts?

Response

<integer>

Parameter

<integer>  Number of frequency display points
Range 11, 21, 41, 51, 101, 201, 251, 401, 501, 1001, 2001, 5001, 10001, 30001 (MS269xA, MS2830A, MS2840A Only)
Suffix code None

Example of Use

To query the number of frequency display points when measuring the reference power.
SEM:SWE:POIN?
> 2001
This command queries the number of frequency display points of the offset for Spectrum Emission Mask measurement.

```plaintext
[:SENSe]:SEMask:OFFSet[1]:LIST:SWEep[1]:POINts
<integer_1>,<integer_2>,<integer_3>,<integer_4>,<integer_5>,<integer_6>,<integer_7>,<integer_8>,<integer_9>,<integer_10>,<integer_11>,<integer_12>
```

Spectrum Emission Mask Offset Trace Point

**Function**

This command queries the number of frequency display points of the offset for Spectrum Emission Mask measurement.

**Command**

```plaintext
[:SENSe]:SEMask:OFFSet[1]:LIST:SWEep[1]:POINts
<integer_n>
```

**Parameter**

- `<integer_n>`: Number of frequency display points of Offset-n
  - **Range**: 11, 21, 41, 51, 101, 201, 251, 401, 501, 1001, 2001, 5001, 10001, 30001 (MS269xA, MS2830A, MS2840A Only)
  - **Suffix code**: None

**Example of Use**

To set the number of frequency display points of the offset.

```plaintext
SEM:OFFS:LIST:SWE:POIN
```
[:SENSe]:SEMask:OFFSet[1]:LIST:SWEep[1]:POINts?
Spectrum Emission Mask Offset Trace Point Query

Function

This command queries the frequency display point number of the offset for Spectrum Emission Mask measurement.

Query

[:SENSe]:SEMask:OFFSet[1]:LIST:SWEep[1]:POINts?

Response

<integer_n>

Parameter

<integer_n>  Number of frequency display points of Offset-n
Range        11, 21, 41, 51, 101, 201, 251, 401, 501, 1001, 2001, 5001, 10001, 30001 (MS269xA, MS2830A, MS2840A Only)
Suffix code  None

Example of Use

To query the number of frequency display points of the offset.
SEM:OFFS:LIST:SWE:POIN?
>
Spectrum Emission Mask Reference Filter Type

Function

This command selects the filter type when measuring the reference power for Spectrum Emission Mask measurement.

Command

`[:SENSe]:SEM:FILTER:TYPE <type>`

Parameter

- `<type>`: Filter type
  - RECT: Rectangle Filter
  - NYQuist: Nyquist Filter
  - RNYQuist: Root Nyquist Filter

Details

This command is not available when Reference Mode is set to either of the following:
- Peak
- Fix

Related command

This command has the same function as the following command.
`[:SENSe]:SEM:FILTER[:RRC][:STATe]`

Example of Use

To set the filter type when measuring the reference power to Root Nyquist Filter.

`SEM:FILT:TYPE RNYQ`
[:SENSe]:SEMask:FILTER:TYPE?
Spectrum Emission Mask Reference Filter Type Query

Function
This command queries the filter type when measuring the reference power for Spectrum Emission Mask measurement.

Query
[:SENSe]:SEMask:FILTER:TYPE?

Response

<type>

Parameter

<type> Filter type
RECT Rectangle Filter
NYQ Nyquist Filter
RNYQ Root Nyquist Filter

Details
This command is not available when Reference Mode is set to either of the following:
• Peak
• Fix

Related command
This command has the same function as the following command.
[:SENSe]:SEMask:FILTER[:RRC][:STATe]?

Example of Use
To query the filter type when measuring the reference power.
SEM:FLT:TYPE?
> RNYQ
[:SENSe]:SEM:mask:FILT:RRC:ALPHa <real>
Spectrum Emission Mask Reference Roll-off Factor

Function

This command sets the rolloff ratio of the filter when measuring the reference power for Spectrum Emission Mask measurement.

Command

[:SENSe]:SEM:mask:FILT:RRC:ALPHa <real>

Parameter

<real> Rolloff ratio of the filter
Range 0.01 to 1.00
Resolution 0.01
Suffix code None

Details

This command is not available when Reference Mode is set to either of the following:
• Peak
• Fix

This command is not available when Filter Type is set to the following:
• Rect

Example of Use

To set the rolloff ratio of the filter when measuring the reference power to 0.22.
SEM:FILT:ALPH 0.22
[:SENSe]:SEM:Mask:FILT:RRC:ALPHa?
Spectrum Emission Mask Reference Roll-off Factor Query

Function

This command queries the rolloff ratio of the filter when measuring the reference power for Spectrum Emission Mask measurement.

Query

[:SENSe]:SEM:Mask:FILT:RRC:ALPHa?

Response

<real>

Parameter

<real>  Filter rolloff ratio
Range  0.01 to 1.00
Resolution  0.01
Suffix code  None

Details

This command is not available when Reference Mode is set to either of the following:

• Peak
• Fix

This command is not available when Filter Type is set to the following:

• Rect

Example of Use

To query the rolloff ratio of the filter when measuring the reference power.
SEM:FILT:ALPH?
> 0.22
This command sets the start frequency of the offset for Spectrum Emission Mask measurement.

Command

[:SENSe]:SEMask:OFFSet[1]:LIST:FREQuency:STARt <freq_n>

Parameter

<freq_n> Start frequency of Offset-n
Range 0 to 4999999700 Hz
Resolution 2 Hz
Suffix code HZ,KHZ,KZ,MHZ,MZ,GHZ,GZ
Hz is used when omitted.

Example of Use

To set the start frequency of the offset.
SEM:OFFS:LIST:FREQ:STAR
4MHZ, 4MHZ, 4MHZ, 4MHZ, 4MHZ, 4MHZ, 4MHZ, 4MHZ, 4MHZ, 4MHZ, 4MHZ, 4
MHZ
[:SENSe]:SEMask:OFFSet[1]:LIST:FREQuency:STARt?

Spectrum Emission Mask Offset Start Frequency Query

Function

This command queries the start frequency of the offset for Spectrum Emission Mask measurement.

Query

[:SENSe]:SEMask:OFFSet[1]:LIST:FREQuency:STARt?

Response

<float>

Parameter

<float> Start frequency of Offset-n

Range 0 to 4999999700 Hz
Resolution 2 Hz
Suffix code None. Value is returned in Hz units.

Example of Use

To query the start frequency of the offset.
SEM:OFFS:LIST:FREQ:STAR?
>
4000000,4000000,4000000,4000000,4000000,4000000,4000000,4000000,4000000,4000000,4000000
2.13 Spectrum Emission Mask

[:SENSe]:SEMask:OFFSet[1]:LIST:FREQuency:STOP
<freq_1>[,<freq_2>[,<freq_3>[,<freq_4>[,<freq_5>[,<freq_6>[,<freq_7>[,<freq_8>[,<freq_9>[,<freq_10>[,<freq_11>[,<freq_12>]]]]]]]]]]]

Spectrum Emission Mask Offset Stop Frequency

Function
This command sets the stop frequency of the offset for Spectrum Emission Mask measurement.

Command
[:SENSe]:SEMask:OFFSet[1]:LIST:FREQuency:STOP <freq_n>

Parameter

<table>
<thead>
<tr>
<th>Parameter</th>
<th>Description</th>
</tr>
</thead>
<tbody>
<tr>
<td>&lt;freq_n&gt;</td>
<td>Stop frequency of Offset-n</td>
</tr>
<tr>
<td>Range</td>
<td>300 to 5000000000 Hz</td>
</tr>
<tr>
<td>Resolution</td>
<td>2 Hz</td>
</tr>
<tr>
<td>Suffix code</td>
<td>HZ,KHZ,KZ,MHZ,MZ,GHZ,GZ</td>
</tr>
</tbody>
</table>

Hz is used when omitted.

Example of Use
To set the stop frequency of the offset.

SEM:OFFS:LIST:FREQ:STOP
6MHZ,6MHZ,6MHZ,6MHZ,6MHZ,6MHZ,6MHZ,6MHZ,6MHZ,6MHZ,6MHZ,6MHZ,6MHZ,6MHZ,6MHZ
[:SENSe]:SEMask:OFFSet[1]:LIST:FREQuency:STOP?

Spectrum Emission Mask Offset Stop Frequency Query

Function

This command queries the stop frequency of the offset for Spectrum Emission Mask measurement.

Query

[:SENSe]:SEMask:OFFSet[1]:LIST:FREQuency:STOP?

Response

<freq_n>

Parameter

<freq_n>   Stop frequency of Offset-n
Range       300 to 5000000000 Hz
Resolution  2 Hz
Suffix code None. Value is returned in Hz units.

Example of Use

To query the stop frequency of the offset.
SEM:OFFS:LIST:FREQ:STOP?
> 6000000,6000000,6000000,6000000,6000000,6000000,6000000,6000000,6000000,6000000,6000000,6000000,6000000,6000000,6000000,6000000
2.13 Spectrum Emission Mask

[:SENSe]:SEMask:OFFSet[1]:LIST:BANDwidth[1]:INTegration
<br bandwidth_1>[,<br bandwidth_2>[,<br bandwidth_3>[,<br bandwidth_4>[,<br bandwidth_5>[,<br bandwidth_6>[,<br bandwidth_7>[,<br bandwidth_8>[,<br bandwidth_9>[,<br bandwidth_10>[,<br bandwidth_11>[,<br bandwidth_12>]]]]]]]]]

Spectrum Emission Mask Offset Integrate Bandwidth

Function
This command sets Integrate BW of the offset for Spectrum Emission Mask measurement.

Command
[:SENSe]:SEMask:OFFSet[1]:LIST:BANDwidth[1]:INTegration
<br bandwidth_n>

Parameter
<br bandwidth_n> Integrate BW of Offset-n
Range 30 Hz to 20 MHz
Resolution Resolutions are set as below, according to the setting values of Integrate BW.
1 Hz (30 Hz to 1 kHz)
10 Hz (1 to 10 kHz)
100 Hz (10 to 100 kHz)
1 kHz (100 kHz to 1 MHz)
10 kHz (1 to 20 MHz)
Suffix code HZ,KHZ,KZ,MHZ,MZ,GHZ,GZ
Hz is used when omitted.

Details
The setting range of this function is limited depending on the setting of RBW of the target offset. Refer to the MS2690A/MS2691A/MS2692A Signal Analyzer Operation Manual (Spectrum Analyzer Function Operation) or MS2830A/MS2840A/MS2850A Signal Analyzer Operation Manual (Spectrum Analyzer Function Operation) for details.

This command is not available if detection of the target offset is set to any of the following:
- Pos&Neg
- Positive
- Negative
- Sample

Example of Use
To set Integrate BW of the offset.
SEM:OFFS:LIST:BAND:INT
3MHZ,3MHZ,3MHZ,3MHZ,3MHZ,3MHZ,3MHZ,3MHZ,3MHZ,3MHZ,3MHZ,3MHZ,
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[:SENSe]:SEMask:OFFSet[1]:LIST:BANDwidth[1]:INTegration?
Spectrum Emission Mask Offset Integrate Bandwidth Query

Function

This command queries Integrate BW of the offset for Spectrum Emission Mask measurement.

Query

[:SENSe]:SEMask:OFFSet[1]:LIST:BANDwidth[1]:INTegration?

Response

<bandwidth_n>

Parameter

<bandwidth_n>  Integrate BW of Offset-n
  Range  30 Hz to 20 MHz
  Resolution  As below, according to Integrate BW.
  1 Hz (30 Hz to 1 kHz)
  10 Hz (1 to 10 kHz)
  100 Hz (10 to 100 kHz)
  1 kHz (100 kHz to 1 MHz)
  10 kHz (1 to 20 MHz)
  Suffix code  None. Value is returned in Hz units.

Details

The setting range of this function is limited depending on the setting of RBW of the target offset. Refer to the MS2690A/MS2691A/MS2692A Signal Analyzer Operation Manual (Spectrum Analyzer Function Operation) or MS2830A/MS2840A/MS2850A Signal Analyzer Operation Manual (Spectrum Analyzer Function Operation) for details.

This command is not available if Detection of the target offset is set to any of the following:

• Pos&Neg
• Positive
• Negative
• Sample

Example of Use

To query Integrate BW of the offset.
SEM:OFFS:LIST:BAND:INT?
>
3000000,3000000,3000000,3000000,3000000,3000000,3000000,3000000,3000000,3000000,3000000,3000000,3000000,3000000,3000000,3000000,3000000,3000000,3000000
2.13 Spectrum Emission Mask

[:SENSe]:SEMask:OFFSet[1]:LIST:BANDwidth[1]:INTegration:AUTO<br /> <switch_1>,<switch_2>,<switch_3>,<switch_4>,<switch_5>,<switch_6>,<switch_7>,<switch_8>,<switch_9>,<switch_10>,<switch_11>,<switch_12>

Spectrum Emission Mask Offset Integrate Bandwidth Auto/Manual

Function

This command enables/disables the automatic Integrate BW setting function for the offset during Spectrum Emission Mask measurement.

Command

[:SENSe]:SEMask:OFFSet[1]:LIST:BANDwidth[1]:INTegration:AUTO <switch_n>

Parameter

<switch_n>  
| Automatic Integrate BW setting function On/Off for Offset-n  
| ON|1  
| Enables the automatic Integrate BW setting function.  
| OFF|0  
| Disables the automatic Integrate BW setting function.  

Details

The setting range of this function is limited depending on the setting of RBW of the target offset. Refer to the MS2690A/MS2691A/MS2692A Signal Analyzer Operation Manual (Spectrum Analyzer Function Operation) or MS2830A/MS2840A/MS2850A Signal Analyzer Operation Manual (Spectrum Analyzer Function Operation) for details.

This command is not available if Detection of the target offset is set to any of the following:
- Pos&Neg
- Positive
- Negative
- Sample

Example of Use

To enable the automatic Integrate BW setting function for the offset.
SEM:OFFS:LIST:BAND:INT:AUTO  
ON, ON, ON, ON, ON, ON, ON, ON, ON, ON, ON, ON
[:SENSe]:SEMask:OFFSet[1]:LIST:BANDwidth[1]:INTegration:AUTO?
Spectrum Emission Mask Offset Integrate Bandwidth Auto/Manual Query

Function

This command queries the On/Off state of the automatic Integrate BW setting function for Spectrum Emission Mask measurement.

Query

[:SENSe]:SEMask:OFFSet[1]:LIST:BANDwidth[1]:INTegration:AUTO?

Response

<switch_n>

Parameter

<switch_n>  Automatic Integrate BW setting function On/Off state for Offset-n
1  Automatic Integrate BW setting function is enabled.
0  Automatic Integrate BW setting function is disabled.

Details

The setting range of this function is limited depending on the setting of RBW of the target offset. Refer to the MS2690A/MS2691A/MS2692A Signal Analyzer Operation Manual (Spectrum Analyzer Function Operation) or MS2830A/MS2840A/MS2850A Signal Analyzer Operation Manual (Spectrum Analyzer Function Operation) for details.

This command is not available if Detection of the target offset is set to any of the following:
• Pos&Neg
• Positive
• Negative
• Sample

Example of Use

To query the automatic Integrate BW setting function On/Off state for the offset
SEM:OFFS:LIST:BAND:INT:AUTO?
> 1,1,1,1,1,1,1,1,1,1,1,1
Function

This command sets the reference level of the offset for Spectrum Emission Mask measurement.

Command

[:SENSe]:SEMask:OFFSet[1]:LIST:RLEVel <ampl_n>

Parameter

<ampl_n> Reference level of Offset-n
Range Value equivalent to −120 to +50 dBm
Resolution 0.01 dB
Suffix code DBM,DM
dBm is used when omitted.

Example of Use

To set the reference level of the offset to 0 dBm.
SEM:OFFS:LIST:RLEV 0,0,0,0,0,0,0,0,0,0,0,0
[:SENSe]:SEM:OFFS[1]:LIST:RL?  
Spectrum Emission Mask Offset Reference Level Query

Function

This command queries the reference level for Spectrum Emission Mask measurement.

Query

[:SENSe]:SEM:OFFS[1]:LIST:RL?

Response

<ampl_n>

Parameter

<ampl_n> Reference level of Offset-n  
Range Value equivalent to −120 to +50 dBm  
Resolution 0.01 dB  
Suffix code None. Value is returned in dBm units.

Example of Use

To query the reference level of the offset.

SEM:OFFS:LIST:RL?
>
0.00,0.00,0.00,0.00,0.00,0.00,0.00,0.00,0.00,0.00,0.00,0.00
2.13 Spectrum Emission Mask

[:SENSe]:SEMask:OFFSet[1]:LIST:RLEVel:AUTO
<switch_1>[,<switch_2>[,<switch_3>[,<switch_4>[,<switch_5>[,<switch_6>[,<switch_7>[,<switch_8>[,<switch_9>[,<switch_10>[,<switch_11>[,<switch_12>]]]]]]]]]]]]]

Spectrum Emission Mask Offset Reference Level Auto/Manual

Function

This command enables/disables the automatic reference level setting function for the offset during Spectrum Emission Mask measurement.

Command

[:SENSe]:SEMask:OFFSet[1]:LIST:RLEVel:AUTO <switch_n>

Parameter

<switch_n> Automatic reference level setting function On/Off for Offset-n
ON|1 Enables the automatic reference level setting function.
OFF|0 Disables the automatic reference level setting function.

Details

The same value as the reference level when measuring the reference power is used in the automatic setting.

Example of Use

To enable the automatic reference level setting function for the offset.
SEM:OFFS:LIST:RLEV:AUTO
ON,ON,OFF,OFF,ON,ON,ON,OFF,OFF,ON,ON
[:SENSe]:SEMask:OFFSet[1]:LIST:RLEVel:AUTO?
Spectrum Emission Mask Offset Reference Level Auto/Manual Query

**Function**
This command queries the automatic reference level setting function On/Off state for the offset during Spectrum Emission Mask measurement.

**Query**
[:SENSe]:SEMask:OFFSet[1]:LIST:RLEVel:AUTO?

**Response**
<switch_n>

**Parameter**
<switch_n> Automatic reference level setting function On/Off for Offset-n
1 Automatic reference level setting function is enabled.
0 Automatic reference level setting function is disabled.

**Details**
The same value as the reference level when measuring the reference power is used in the automatic setting.

**Example of Use**
To query the automatic reference level setting function On/Off state for the offset.
SEM:OFFS:LIST:RLEV:AUTO?
> 1,1,0,0,1,1,1,1,0,0,1,1
Spectrum Emission Mask Offset On/Off

Function

This command sets the offset for Spectrum Emission Mask measurement On/Off.

Command

[:SENSe]:SEMask:OFFSet[1]:LIST:STATe <switch_n>

Parameter

<switch_n>  Offset-n On/Off

ON|1  Sets the offset to On.
OFF|0  Sets the offset to Off.

Example of Use

To set the offset.
SEM:OFFS:LIST:STAT
ON, ON, ON, ON, OFF, OFF, ON, ON, ON, OFF, OFF
[:SENSe]:SEMask:OFFSet[1]:LIST:STATe?
Spectrum Emission Mask Offset On/Off Query

Function

This command queries the On/Off state of the offset for Spectrum Emission Mask measurement.

Query

[:SENSe]:SEMask:OFFSet[1]:LIST:STATe?

Response

<switch_n>

Parameter

<switch_n> Offset-n On/Off
1 On
0 Off

Example of Use

To query the On/Off state of the offset.
SEM:OFFS:LIST:STAT?
> 1,1,1,1,0,0,1,1,1,1,0,0
2.13 Spectrum Emission Mask

[:SENSe]:SEMask:OFFSet[1]:LIST:STARt:ABSolute[1]|2
<ampl_1>[,<ampl_2>[,<ampl_3>[,<ampl_4>[,<ampl_5>[,<ampl_6>[,<ampl_7
>,[,<ampl_8>[,<ampl_9>[,<ampl_10>[,<ampl_11>[,<ampl_12>]]]]]]]]]]]

Spectrum Emission Mask Offset Start Frequency Absolute Limit Level

Function

This command sets the absolute level upper limit of the offset start frequency for Spectrum Emission Mask measurement.

Command

[:SENSe]:SEMask:OFFSet[1]:LIST:STARt:ABSolute[1]|2
<ampl_n>

Parameter

<ampl_n> Absolute level upper limit of Offset-n start frequency

Range –200 to +50 dBm

Resolution 0.01 dB

Suffix code DBM,DM

dBm is set when omitted.

Details

ABSolute1 sets the absolute level upper limit 1, and ABSolute2 sets the absolute level upper limit 2.

Example of Use

To set the absolute level upper limit 2 of the start frequency of the offset.

SEM:OFFS:LIST:STAR:ABS2 0,-2,-2,0,0,-10,0,-2,-2,0,0,-10

Related command

This command has the same function as the following command.

This command queries the absolute level upper limit of the offset start frequency for Spectrum Emission Mask measurement.

Query

`:SENSe]:SEM:OFFSet[1]:LIST:STARt:ABSolute[1]|2?`

Response

`<ampl_n>`

Parameter

`<ampl_n>` Absolute level upper limit of Offset-\(n\) start frequency

- Range: -200 to +50 dBm
- Resolution: 0.01 dB
- Suffix code: None. Value is returned in dBm units.

Details

ABSolute1 sets the absolute level upper limit 1, and ABSolute2 sets the absolute level upper limit 2.

Example of Use

To query the absolute level upper limit 2 of the start frequency of the offset.

```
SEM:OFFS:LIST:STAR:ABS2?
>
0.00,-2.00,-2.00,0.00,0.00,-10.00,0.00,-2.00,-2.00,0.00,0.00,-2.00,0.00,-10.00
```

Related command

This command has the same function as the following command.

2.13 Spectrum Emission Mask

<ampl_1>,<ampl_2>,<ampl_3>,<ampl_4>,<ampl_5>,<ampl_6>,<ampl_7>
<ampl_8>,<ampl_9>,<ampl_10>,<ampl_11>,<ampl_12>

Spectrum Emission Mask Offset Start Frequency Absolute Limit Level

Function

This command sets the absolute level upper limit of the offset start frequency for Spectrum Emission Mask measurement.

Command

<ampl_n>

Parameter

<ampl_n>  Absolute level upper limit of Offset-n start frequency
Range: -200 to +50 dBm
Resolution: 0.01 dB
Suffix code: DBM,DM

dBm is set when omitted.

Details

ABSolute1 sets the absolute level upper limit 1, and ABSolute2 sets the absolute level upper limit 2.

Example of Use

To set the absolute level upper limit 2 of the start frequency of the offset.
0,-2,-2,0,0,-10,0,-2,-2,0,0,-10

Related command

This command has the same function as the following command.
[:SENSe]:SEMask:OFFSet[1]:LIST:STARt:ABSolute[1]|2
Spectrum Emission Mask Offset Start Frequency Absolute Limit Level Query

Function

This command queries the absolute level upper limit of the offset start frequency for Spectrum Emission Mask measurement.

Query


Response

<ampl_n>

Parameter

<ampl_n> Absolute level upper limit of Offset-n start frequency

Range –200 to +50 dBm
Resolution 0.01 dB
Suffix code None. Value is returned in dBm units.

Details

ABSolute1 sets the absolute level upper limit 1, and ABSolute2 sets the absolute level upper limit 2.

Example of Use

To query the absolute level upper limit 2 of the start frequency of the offset.

>
0.00,-2.00,-2.00,0.00,0.00,-10.00,0.00,-2.00,-2.00,0.00,0.00,-10.00

Related command

This command has the same function as the following command.

[:SENSe]:SEMask:OFFSet[1]:LIST:STARt:ABSolute[1]|2?
Function

This command sets the absolute level upper limit of the offset stop frequency for Spectrum Emission Mask measurement.

Command

[:SENSe]:SEMask:OFFSet[1]:LIST:STOP:ABSolute[1]|2

Parameter

<ampl_n> Absolute level upper limit of Offset-n stop frequency

Range -200 to +50 dBm
Resolution 0.01 dB
Suffix code DBM,DM

dBm is set when omitted.

Details

ABSolute1 sets the absolute level upper limit 1, and ABSolute2 sets the absolute level upper limit 2.

Example of Use

To set the absolute level upper limit 2 of the stop frequency of the offset.
SEM:OFFS:LIST:STOP:ABS2
-10,-10,-10,-5,-5,-10,-10,-10,-10,-5,-5,-10

Related command

This command has the same function as the following command.
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[:SENSe]:SEMask:OFFSet[1]:LIST:STOP:ABSolute[1]|2?
Spectrum Emission Mask Offset Stop Frequency Absolute Limit Level Query

Function

This command queries the absolute level upper limit of the offset stop frequency for Spectrum Emission Mask measurement.

Query

[:SENSe]:SEMask:OFFSet[1]:LIST:STOP:ABSolute[1]|2?

Response

<ampl_n>

Parameter

<ampl_n>  Absolute level upper limit of Offset-n stop frequency
Range    -200 to +50 dBm
Resolution  0.01 dB
Suffix code None. Value is returned in dBm units.

Details

ABSolute1 sets the absolute level upper limit 1, and ABSolute2 sets the absolute level upper limit 2.

Example of Use

To set the absolute level upper limit 2 of the stop frequency of the offset.
SEM:OFFS:LIST:STOP:ABS2?
>
-10.00,-10.00,-10.00,-5.00,-5.00,-10.00,-10.00,-10.00,-10.00,-5.00,-5.00,-10.00

Related command

This command has the same function as the following command.
Function

This command sets the absolute level upper limit of the offset stop frequency for Spectrum Emission Mask measurement.

Command

<ampl_1>,<ampl_2>,<ampl_3>,<ampl_4>,<ampl_5>,<ampl_6>,<ampl_7>,<ampl_8>,<ampl_9>,<ampl_10>,<ampl_11>,<ampl_12>

Parameter

<ampl_n> Absolute level upper limit of Offset-n stop frequency
Range –200 to +50 dBm
Resolution 0.01 dB
Suffix code DBM,DM
dBm is set when omitted.

Details

ABSolute1 sets the absolute level upper limit 1, and ABSolute2 sets the absolute level upper limit 2.

Example of Use

To set the absolute level upper limit 2 of the stop frequency of the offset.
CALC:SEM:OFFS:LIST:STOP:ABS2
10,-10,-10,-5,-5,-10,-10,-10,-10,-5,-5,-10

Related command

This command has the same function as the following command.
[:SENSe]:SEMask:OFFSet[1]:LIST:STOP:ABSolute[1]|2
**Chapter 2  SCPI Device Message Details**

**Spectrum Emission Mask Offset Stop Frequency Absolute Limit Level Query**

**Function**

This command queries the absolute level upper limit of the offset stop frequency for Spectrum Emission Mask measurement.

**Query**


**Response**

`<ampl_n>`

**Parameter**

`<ampl_n>`  
Absolute level upper limit of Offset-n stop frequency  
- **Range**: –200 to +50 dBm  
- **Resolution**: 0.01 dB  
- **Suffix code**: None. Value is returned in dBm units.

**Details**

ABSolute1 sets the absolute level upper limit 1, and ABSolute2 sets the absolute level upper limit 2.

**Example of Use**

To set the absolute level upper limit 2 of the stop frequency of the offset:

```
CALC:SEM:OFFS:LIST:STOP:ABS2?
> -10.00,-10.00,-10.00,-5.00,-5.00,-10.00,-10.00,-10.00,-10.00
```

**Related command**

This command has the same function as the following command.

`[:SENSe]:SEMask:OFFSet[1]:LIST:STOP:ABSolute[1]|2?`
2.13 Spectrum Emission Mask

[:SENSe]:SEM:OFFSet[1]:LIST:STAR:tRCARRier
<ampl_1>,<ampl_2>,<ampl_3>,<ampl_4>,<ampl_5>,<ampl_6>,<ampl_7
>,<ampl_8>,<ampl_9>,<ampl_10>,<ampl_11>,<ampl_12>]

Spectrum Emission Mask Offset Start Frequency Limit Level

Function
This command sets the relative level upper limit of the offset start frequency for Spectrum Emission Mask measurement.

Command
[:SENSe]:SEM:OFFSet[1]:LIST:STAR:tRCARRier <ampl_n>

Parameter
<ampl_n> Relative level upper limit of Offset-n start frequency
Range –200 to +50 dB
Resolution 0.01 dB
Suffix code DB
dB is set when omitted.

Example of Use
To set the relative level upper limit of the start frequency of the offset.
SEM:OFFS:LIST:STAR:RCAR 0,0,0,0,0,0,0,0,0

Related command
This command has the same function as the following command.
:CALCulate:SEM:OFFSet[1]:LIST:STAR:tRCARRier
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[:SENSe]:SEMmask:OFFSet[1]:LIST:STARt:RCARrier?
Spectrum Emission Mask Offset Start Frequency Limit Level Query

Function
This command queries the relative level upper limit of the offset start frequency for Spectrum Emission Mask measurement.

Query
[:SENSe]:SEMmask:OFFSet[1]:LIST:STARt:RCARrier?

Response
<ampl_n>

Parameter
<ampl_n> Relative level upper limit of Offset-n start frequency
  Range –200 to +50 dB
  Resolution 0.01 dB
  Suffix code None. Value is returned in dB units.

Example of Use
To query the relative level upper limit of the start frequency of the offset.
SEM:OFFS:LIST:STAR:RCAR?
>
0.00,0.00,0.00,0.00,0.00,0.00,0.00,0.00,0.00,0.00,0.00,0.00

Related command
This command has the same function as the following command.
:CALCulate:SEMmask:OFFSet[1]:LIST:STARt:RCARrier?
:CALCulate:SEM:OFFSet[1]:LIST:STARt:RCARrier <ampl_1>[,<ampl_2>[,<ampl_3>[,<ampl_4>[,<ampl_5>[,<ampl_6>[,<ampl_7>[,<ampl_8>[,<ampl_9>[,<ampl_10>[,<ampl_11>[,<ampl_12>]]]]]]]]]]]

Spectrum Emission Mask Offset Start Frequency Limit Level

Function

This command sets the relative level upper limit of the offset start frequency for Spectrum Emission Mask measurement.

Command

:CALCulate:SEM:OFFSet[1]:LIST:STARt:RCARrier <ampl_n>

Parameter

<ampl_n> Relative level upper limit of Offset-n start frequency

Range -200 to +50 dB

Resolution 0.01 dB

Suffix code DB

dB is set when omitted.

Example of Use

To set the relative level upper limit of the start frequency of the offset.

CALC:SEM:OFFS:LIST:STAR:RCAR 0,0,0,0,0,0,0,0,0,0,0,0

Related command

This command has the same function as the following command.

[:SENSe]:SEM:OFFSet[1]:LIST:STARt:RCARrier
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*:CALCulate:SEMask:OFFSet[1]:LIST:STARt:RCARrier?*

Spectrum Emission Mask Offset Start Frequency Limit Level Query

**Function**

This command sets the relative level upper limit of the offset start frequency for Spectrum Emission Mask measurement.

**Query**

*:CALCulate:SEMask:OFFSet[1]:LIST:STARt:RCARrier?*

**Response**

<ampl_n>

**Parameter**

<ampl_n> Relative level upper limit of Offset-n start frequency
- Range: –200 to +50 dB
- Resolution: 0.01 dB
- Suffix code: None. Value is returned in dB units.

**Example of Use**

To query the relative level upper limit of the start frequency of the offset.

```
CALC:SEM:OFFS:LIST:STAR:RCAR?
```

> 0.00,0.00,0.00,0.00,0.00,0.00,0.00,0.00,0.00,0.00,0.00,0.00

**Related command**

This command has the same function as the following command.

[[:SENSe]:SEMask:OFFSet[1]:LIST:STARt:RCARrier?]
[:SENSe]:SEMask:OFFSet[1]:LIST:STOP:RCARrier
<ampl_1>,<ampl_2>,<ampl_3>,<ampl_4>,<ampl_5>,<ampl_6>,<ampl_7>
>[],<ampl_8>,<ampl_9>,<ampl_10>,<ampl_11>,<ampl_12>]]]]]]]]]
Spectrum Emission Mask Offset Stop Frequency Limit Level

Function

This command sets the relative level upper limit of the offset stop frequency for Spectrum Emission Mask measurement.

Command

[:SENSe]:SEMask:OFFSet[1]:LIST:STOP:RCARrier <ampl_n>

Parameter

<ampl_n> Relative level upper limit of Offset-n stop frequency
Range -200 to +50 dB
Resolution 0.01 dB
Suffix code DB

dB is set when omitted.

Example of Use

To set the absolute level upper limit of the stop frequency of the offset.
SEM:OFFS:LIST:STOP:RCAR
-30,-30,-30,-30,-30,-30,-30,-30,-30,-30,-30,-30

Related command

This command has the same function as the following command.
:CALCulate:SEMask:OFFSet[1]:LIST:STOP:RCARrier
[:SENSe]:SEMask:OFFSet[1]:LIST:STOP:RCARrier?
Spectrum Emission Mask Offset Stop Frequency Limit Level Query

Function

This command sets the relative level upper limit of the offset stop frequency for Spectrum Emission Mask measurement.

Query

[:SENSe]:SEMask:OFFSet[1]:LIST:STOP:RCARrier?

Response

<ampl_n>

Parameter

<ampl_n> Relative level upper limit of Offset-n stop frequency
Range –200 to +50 dB
Resolution 0.01 dB
Suffix code None. Value is returned in dB units.

Example of Use

To query the absolute level upper limit of the stop frequency of the offset.
SEM:OFFS:LIST:STOP:RCAR?
>
-30.00,-30.00,-30.00,-30.00,-30.00,-30.00,-30.00,-30.00,
-30.00,-30.00,-30.00,-30.00

Related command

This command has the same function as the following command.
:CALCulate:SEMask:OFFSet[1]:LIST:STOP:RCARrier?
2.13 Spectrum Emission Mask

:CALCulate:SEM:OFFSet[1]:LIST:STOP:RCARrier
<ampl_1>,<ampl_2>,<ampl_3>,<ampl_4>,<ampl_5>,<ampl_6>,<ampl_7>,<ampl_8>,<ampl_9>,<ampl_10>,<ampl_11>,<ampl_12>

Spectrum Emission Mask Offset Stop Frequency Limit Level

Function

This command sets the relative level upper limit of the offset stop frequency for Spectrum Emission Mask measurement.

Command

:CALCulate:SEM:OFFSet[1]:LIST:STOP:RCARrier <ampl_n>

Parameter

<ampl_n> Relative level upper limit of Offset-n stop frequency

Range –200 to +50 dB
Resolution 0.01 dB
Suffix code DB

dB is set when omitted.

Example of Use

To set the absolute level upper limit of the stop frequency of the offset. 
CALC:SEM:OFFS:LIST:STOP:RCAR
-30,-30,-30,-30,-30,-30,-30,-30,-30,-30,-30,-30

Related command

This command has the same function as the following command. 
[:SENSe]:SEM:OFFSet[1]:LIST:STOP:RCARrier
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**:CALCulate:SEMask:OFFSet[1]:LIST:STOP:RCARrier?**

Spectrum Emission Mask Offset Stop Frequency Limit Level Query

**Function**

This command sets the relative level upper limit of the offset stop frequency for Spectrum Emission Mask measurement.

**Query**

**:CALCulate:SEMask:OFFSet[1]:LIST:STOP:RCARrier?**

**Response**

<ampl_n>

**Parameter**

<ampl_n> Relative level upper limit of Offset-n stop frequency

- **Range**: –200 to +50 dB
- **Resolution**: 0.01 dB
- **Suffix code**: None. Value is returned in dB units.

**Example of Use**

To query the absolute level upper limit of the stop frequency of the offset.

CALC:SEM:OFFS:LIST:STOP:RCAR?

> -30.00,-30.00,-30.00,-30.00,-30.00,-30.00,-30.00,-30.00,
  -30.00,-30.00,-30.00,-30.00

**Related command**

This command has the same function as the following command.

[[:SENSe]:SEMask:OFFSet[1]:LIST:STOP:RCARrier?]
[:SENSe]:SEM:LOGic:OFFSet[1]:LIST:TEST
<logic_1>,<logic_2>,<logic_3>,<logic_4>,<logic_5>,<logic_6>,<logic_7>,
<logic_8>,<logic_9>,<logic_10>,<logic_11>,<logic_12>
Spectrum Emission Mask Fail Logic

Function
This command selects the judgment method of the offset for Spectrum Emission Mask measurement.

Command
[:SENSe]:SEM:LOGic:OFFSet[1]:LIST:TEST <logic_n>

Parameter

<logic_n> Judgment method for offset n
OFF Does not judge.
ABSolute ABS1
RELative REL Judges by using the relative level upper limit.
AND ABS1 and REL Judges “AND” by using the absolute level upper limit 1 and relative level upper limit.
OR ABS1 or REL Judges “OR” by using the absolute level upper limit 1 and relative level upper limit.
AAND (ABS1 and REL) and ABS2 Judges “AND” by using the absolute level upper limit 1 and relative level upper limit. Judges “AND” by using the result and the absolute level upper limit 2.
AOR (ABS1 or REL) and ABS2 Judges “OR” by using the absolute level upper limit 1 and relative level upper limit. Judges “AND” using the result and the absolute level upper limit 2.
AND2 ABS1 and ABS2 Judges “AND” by using the absolute level upper limit 1 and the absolute level upper limit 2.

Example of Use
To judge by using the absolute level upper limit 1.
SEM:LOG:OFFS:LIST:TEST
ABS,ABS,ABS,ABS,ABS,ABS,ABS,ABS,ABS,ABS,ABS

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Related command

This command has the same function as the following command.

```
:CALCulate:SEMask:LOGic:OFFSet[1]:LIST:TEST
```

`:SENSe]:SEM:LOGic:OFFSet[1]:LIST:TEST?

Spectrum Emission Mask Fail Logic Query

Function

This command queries the judgment method of the offset for Spectrum Emission Mask measurement.

Query

```
[SENSe]:SEM:LOGic:OFFSet[1]:LIST:TEST?
```

Response

```
<logic_n>
```

Parameter

```
<logic_n>   Judgment method for offset n
OFF          Does not judge.
ABS1         Judges by using the absolute level upper limit 1.
REL          Judges by using the relative level upper limit.
ABS1 and REL Judges “AND” by using the absolute level upper limit 1 and the relative level upper limit.
ABS1 or REL  Judges “OR” by using the absolute level upper limit 1 and the relative level upper limit.
(ABS1 and REL) and ABS2 Judges “AND” by using the absolute level upper limit 1 and relative level upper limit. Judges “AND” by using the result and the absolute level upper limit 2.
(ABS1 or REL) and ABS2 Judges “OR” by using the absolute level upper limit 1 and relative level upper limit. Judges “AND” by using the result and the absolute level upper limit 2.
ABS1 and ABS2 Judges by using the absolute level upper limit 1
and the absolute level upper limit 2.

Example of Use

To query the judgment result.

```
SEM:LOG:OFF:LIST:TEST?
> ABS,ABS,ABS,ABS,ABS,ABS,ABS,ABS,ABS
```

Related command

This command has the same function as the following command.

```
:CALCulate:SEMask:LOGic:OFFSet[1]:LIST:TEST?
```

```
:CALCulate:SEMask:LOGic:OFFSet[1]:LIST:TEST
<logic_1>[,<logic_2>[,<logic_3>[,<logic_4>[,<logic_5>[,<logic_6>[,<logic_7>[,<logic_8>[,<logic_9>[,<logic_10>[,<logic_11>[,<logic_12>]]]]]]]]]]
```

Spectrum Emission Mask Fail Logic

Function

This command selects the judgment method of the offset for Spectrum Emission Mask measurement.

Command

```
:CALCulate:SEMask:LOGic:OFFSet[1]:LIST:TEST <logic_n>
```

Parameter

<table>
<thead>
<tr>
<th>&lt;logic_n&gt;</th>
<th>Judgement method of the offset n</th>
</tr>
</thead>
<tbody>
<tr>
<td>OFF</td>
<td>Does not judge.</td>
</tr>
<tr>
<td>ABSolute</td>
<td>Judges using the absolute level upper limit 1.</td>
</tr>
<tr>
<td>RELative</td>
<td>Judges using the relative level upper limit.</td>
</tr>
<tr>
<td>AND</td>
<td>Judges “AND” using the absolute level upper limit 1 and the relative level upper limit.</td>
</tr>
<tr>
<td>OR</td>
<td>Judges “OR” using the absolute level upper limit 1 and the relative level upper limit.</td>
</tr>
<tr>
<td>AAND</td>
<td>(ABS1 and REL) and ABS2. Judges “AND” using the absolute level upper limit 1 and relative level upper limit. Judges “AND” using the result and the absolute level upper limit 2.</td>
</tr>
<tr>
<td>AOR</td>
<td>(ABS1 or REL) and ABS2.</td>
</tr>
</tbody>
</table>

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Judges “OR” using the absolute level upper limit 1 and relative level upper limit. Judges “AND” using the result and the absolute level upper limit 2.

**AND2**

ABS1 and ABS2

Judges using the absolute level upper limit 1 and the absolute level upper limit 2.

Example of Use

To judge using the absolute level upper limit 1.

```
CALC:SEM:LOG:OFFS:LIST:TEST
ABS,ABS,ABS,ABS,ABS,ABS,ABS,ABS,ABS,ABS
```

Related command

This command has the same function as the following command.

```
[:SENSe]:SEMask:LOGic:OFFSet[1]:LIST:TEST
```
This command queries the judgment method of the offset for Spectrum Emission Mask measurement.

**Query**

:CALCulate:SEM:LOGic:OFFSet[1]:LIST:TEST?

**Response**

<logic_n>

**Parameter**

<logic_n>  
OFF  
ABS  
REL  
AND  
OR  
AAND  
AOR  
AND2  

Judgment method for offset n

OFF  
Does not judge.

ABS  
Judges by using the absolute level upper limit 1.

REL  
Judges by using the relative level upper limit.

AND  
ABS1 and REL  
Judges “AND” by using the absolute level upper limit 1 and the relative level upper limit.

OR  
ABS1 or REL  
Judges “OR” by using the absolute level upper limit 1 and the relative level upper limit.

AAND  
(ABS1 and REL) and ABS2  
Judges “AND” by using the absolute level upper limit 1 and relative level upper limit. Judges “AND” by using the result and the absolute level upper limit 2.

AOR  
(ABS1 or REL) and ABS2  
Judges “OR” by using the absolute level upper limit 1 and relative level upper limit. Judges “AND” by using the result and the absolute level upper limit 2.

AND2  
ABS1 and ABS2  
Judges by using the absolute level upper limit 1 and the absolute level upper limit 2.

**Example of Use**

To query the judgment result.

CALC:SEM:LOG:OFFS:LIST:TEST?
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> ABS,ABS,ABS,ABS,ABS,ABS,ABS,ABS,ABS,ABS,ABS,ABS,OFF,OFF

Related command

This command has the same function as the following command.
[:SENSe]:SEMask:LOGic:OFFSet[1]:LIST:TEST?

:CONFigure:SEMask
Spectrum Emission Mask Configure

Function

This command sets Spectrum Emission Mask measurement to On.

Command

:CONFigure:SEMask

Details

No measurement is executed.

Example of Use

To set SEM measurement to On.
CONF:SEM

:INITiate:SEMask
Spectrum Emission Mask Initiate

Function

This command starts Spectrum Emission Mask measurement.

Command

:INITiate:SEMask

Details

Spectrum Emission Mask measurement is set to On and the measurement is initiated, when this function is executed.
To read out the measurement results after executing this command, perform the synchronization control using the “*WAI” command.

Example of Use

To start SEM measurement once.
INIT:SEM
:FETCH:SEM[n]?
Spectrum Emission Mask Fetch

Function

This command outputs the measurement result of Spectrum Emission Mask measurement.

Query

:FETCH:SEM[n]?

Response

When the result mode is A:
<total_judge>,<ref_power>,
<abs_lower_offset_1>,
<margin_lower_offset_1>,<freq_lower_offset_1>,
<lower_offset_1>,<abs_upper_offset_1>,
<margin_upper_offset_1>,<freq_upper_offset_1>,
<upper_offset_1>,
<abs_lower_offset_2>,
<margin_lower_offset_2>,<freq_lower_offset_2>,
<lower_offset_2>,<abs_upper_offset_2>,
<margin_upper_offset_2>,<freq_upper_offset_2>,
<upper_offset_2>,
......
<abs_lower_offset_12>,
<margin_lower_offset_12>,<freq_lower_offset_12>,
<lower_offset_12>,<abs_upper_offset_12>,
<margin_upper_offset_12>,<freq_upper_offset_12>,
<upper_offset_12>

(n=1 or when omitted.)

When the result mode is B:
-999.0,<ref_power>,-999.0,-999.0,0,
-999.0,-999.0,-999.0,-999.0,-999.0,
-999.0,-999.0,
<rel_lower_offset_1>,<abs_lower_offset_1>,
<freq_lower_offset_1>
-999.0,-999.0,
<rel_upper_offset_1>,<abs_upper_offset_1>,
<freq_upper_offset_1>
-999.0,-999.0,
<rel_lower_offset_2>,<abs_lower_offset_2>,
<freq_lower_offset_2>
-999.0,-999.0,
<rel_upper_offset_2>,<abs_upper_offset_2>,
<freq_upper_offset_2>
......
-999.0,-999.0,
<rel_lower_offset_12>,<abs_lower_offset_12>,
<freq_lower_offset_12>
-999.0,-999.0,
<rel_upper_offset_12>,<abs_upper_offset_12>,
<freq_upper_offset_12>
<margin_lower_offset_1>,<margin_upper_offset_1>,
<margin_lower_offset_2>,<margin_upper_offset_2>,
......
<margin_lower_offset_12>,<margin_upper_offset_12>,
(n=1 or when omitted.)
-999.0,-999.0,
<lower_offset_1>,<upper_offset_1>,
<lower_offset_2>,<upper_offset_2>,
......
<lower_offset_12>,<upper_offset_12>
(n=7 or 8)
-999.0,-999.0,
<abs_lower_offset_1>,<abs_upper_offset_1>,
<abs_lower_offset_2>,<abs_upper_offset_2>,
......
<abs_lower_offset_12>,<abs_upper_offset_12>
(n=10)
-999.0,-999.0,
<rel_lower_offset_1>,<rel_upper_offset_1>,
<rel_lower_offset_2>,<rel_upper_offset_2>,
......
<rel_lower_offset_12>,<rel_upper_offset_12>
(n=11)
<total_judge>,<ref_power>,
<abs_lower_offset_1>,<abs_upper_offset_1>,
<margin_lower_offset_1>,<margin_upper_offset_1>,
<freq_lower_offset_1>,<freq_upper_offset_1>,
<lower_offset_1>,<upper_offset_1>,
<abs_lower_offset_2>,<abs_upper_offset_2>,
<margin_lower_offset_2>,<margin_upper_offset_2>,
<freq_lower_offset_2>,<freq_upper_offset_2>,
<lower_offset_2>,<upper_offset_2>,
......
<abs_lower_offset_12>,<abs_upper_offset_12>,

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### Spectrum Emission Mask

2.13

```
<margin_lower_offset_12>,<margin_upper_offset_12>,
<freq_lower_offset_12>,<freq_upper_offset_12>,
<lower_offset_12>,<upper_offset_12>
(n=13)
```

#### Parameter

- `<ref_power>`: Reference absolute power
- `<abs_lower_offset_n>`: Peak value of absolute power of lower Offset·n
- `<abs_upper_offset_n>`: Peak value of absolute power of upper Offset·n
  - No suffix code, dBm unit, 0.001 dB resolution.
  - “–999.0” is returned when no measurement is performed.
- `<rel_lower_offset_n>`: Peak value of relative power of lower Offset·n
- `<rel_upper_offset_n>`: Peak value of relative power of upper Offset·n
- `<margin_lower_offset_n>`: Minimum value of margin of lower Offset·n
- `<margin_upper_offset_n>`: Minimum value of margin of upper Offset·n
  - No suffix code, dB unit, 0.001 dB resolution.
  - “–999.0” is returned when no measurement is performed.
- `<freq_lower_offset_n>`: Frequency of peak level of lower Offset·n
- `<freq_upper_offset_n>`: Frequency of peak level of upper Offset·n
  - No suffix code, Hz unit, 1 Hz resolution.
  - “–999999999999” is returned when no measurement is performed.
- `<total_judge>`: Total judgment result
- `<lower_offset_n>`: Judgment result of lower Offset·n
- `<upper_offset_n>`: Judgment result of upper Offset·n
  - This command returns 0 when it is PASS, and returns 1 when it is FAIL.
  - This command returns “–999.0” when no measurement is performed.
Details

This function outputs the measurement result at the Spectrum Emission Mask measurement performed last. It is possible to output the measurement result in a state that the measurement has already been done, and in a different style. You can use the READ command if you perform a measurement along with starting a sweep again. The return value of this function varies according to the result mode. (cf. :SYSTem:RESult:MODE)

Example of Use

To obtain the peak value of the absolute power for SEM measurement (n = 10).
FETC:SEM10?
>
-999.0,-999.0,-100.000,-100.000,-60.000,-60.000,45.000,-45.000,-30.000,-30.000,-10.000,-10.000,0.000,0.000,-100.000,-100.000,-60.000,-60.000,45.000,-45.000,-30.000,-30.000,-10.000,-10.000,0.000,0.000
:READ:SEM[n]?
Spectrum Emission Mask Read

Function

This command outputs Spectrum Emission Mask measurement and outputs the measurement result.
It achieves the same result as when commands are sent in the order of:
:INITiate:SEM[n]
:FETCh:SEM[n]?

:MEASure:SEM[n]?
Spectrum Emission Mask Measure

Function

This command performs Spectrum Emission Mask measurement and outputs the measurement result.
It achieves the same result as when commands are sent in the order of:
:CONFigure:SEM[n]
:INITiate:SEM[n]
:FETCh:SEM[n]?
[:SENSe]:SEM:Filter[:RRC]:State ON|OFF|1|0

Spectrum Emission Mask Root Nyquist Filter State

Function

This command sets the filter type for Spectrum Emission Mask measurement.

Command

[:SENSe]:SEM:Filter[:RRC]:State <filter>

Parameter

<filter> Filter type
OFF|0 Rectangle filter
ON|1 Root Nyquist filter (Default)

Example of Use

To set the filter type to Root Nyquist.
SEM:FILT 1

Related command

This command has the same function as the following command.
[:SENSe]:SEM:Filter:TYPE
[:SENSe]:SEMask:FILTer[:RRC][:STATe]?
Spectrum Emission Mask Root Nyquist Filter State Query

Function
This command queries the filter type for Spectrum Emission Mask measurement.

Query
[:SENSe]:SEMask:FILTer[:RRC][:STATe]?

Response
<filter>

Parameter
<filter>    Filter type
  0    Rectangle filter, Nyquist filter
  1    Root Nyquist filter (Default)

Example of Use
To query the filter type.
SEM:FILT?
> 1

Related command
This command has the same function as the following command.
[:SENSe]:SEMask:FILTer:TYPE?
:DISPlay:SEMask:RESult:TYPE PEAK|MARGin

Spectrum Emission Mask Result Type

Function

This command switches the type of the result display for Spectrum Emission Mask measurement.

Command

```
DISPlay:SEMask:RESult:TYPE <type>
```

Parameter

- `<type>`: Type of result display
  - **PEAK**: Displays the peak
  - **MARGin**: Displays the margin to the limit line.

Example of Use

To set the type of the result display to the peak.
```
DISP:SEM:RES:TYPE PEAK
```

:DISPlay:SEMask:RESult:TYPE?

Spectrum Emission Mask Result Type Query

Function

This command queries the type of the result display for Spectrum Emission Mask measurement.

Command

```
DISPlay:SEMask:RESult:TYPE?
```

Response

- `<type>`

Parameter

- `<type>`: Type of result display
  - **PEAK**: Displays the peak
  - **MARG**: Displays the margin to the limit line.

Example of Use

To query the type of the result display.
```
DISP:SEM:RES:TYPE?
> PEAK
```
### Title Entry

#### Function

This command registers the title character string.

#### Command

```
:DISPlay:SEMask:ANNotation:TITLe:DATA <string>
```

#### Parameter

- `<string>`: Character string within 32 characters enclosed by double quotation marks (" "), or single quotation marks (').

#### Example of Use

To set the title character string.
```
DISP:SEM:ANN:TITL:DATA 'SPECTRUM ANALYZER'
```

#### Related Command

This command has the same function as the following commands.
```
:DISPlay:ANNotation:TITLe:DATA
:DISPlay:ACPower:ANNotation:TITLe:DATA
:DISPlay:CHPower:ANNotation:TITLe:DATA
:DISPlay:OBWidth:ANNotation:TITLe:DATA
:DISPlay:BPOWer|:TXPower:ANNotation:TITLe:DATA
```
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:DISPlay:SEMask:ANNotation:TITLe:DATA?
Title Entry Query

Function
This command queries the title character string.

Command
:DISPlay:SEMask:ANNotation:TITLe:DATA?

Parameter
<string> Character string within 32 characters enclosed by double quotation marks ("" ) or single quotation marks ('').

Example of Use
To query the title character string.
DISP:SEM:ANN:TITL:DATA?
> SPECTRUM ANALYZER

Related Command
This command has the same function as the following commands.
:DISPlay:ANNotation:TITLe:DATA?
:DISPlay:ACPower:ANNotation:TITLe:DATA?
:DISPlay:CHPower:ANNotation:TITLe:DATA?
:DISPlay:OWidth:ANNotation:TITLe:DATA?
:DISPlay:BPOWer|:TXPower:ANNotation:TITLe:DATA?
**2.13 Spectrum Emission Mask**

:DISPlay:SEMask:VIEW[1]:WINDow[1]:TRACe:Y[:SCALe]:PDIVision

<rel_ampl>

Log Scale Range

**Function**

This command sets the Y-axis scale magnification when Scale Mode is set to Log.

**Command**

DISPlay:SEMask:VIEW[1]:WINDow[1]:TRACe:Y[:SCALe]:PDIVision <rel_ampl>

**Parameter**

<table>
<thead>
<tr>
<th>&lt;rel_ampl&gt;</th>
<th>Y-axis scale magnification</th>
</tr>
</thead>
<tbody>
<tr>
<td>0.1</td>
<td>0.1 dB/div</td>
</tr>
<tr>
<td>0.2</td>
<td>0.2 dB/div</td>
</tr>
<tr>
<td>0.5</td>
<td>0.5 dB/div</td>
</tr>
<tr>
<td>1</td>
<td>1 dB/div</td>
</tr>
<tr>
<td>2</td>
<td>2 dB/div</td>
</tr>
<tr>
<td>5</td>
<td>5 dB/div</td>
</tr>
<tr>
<td>10</td>
<td>10 dB/div</td>
</tr>
<tr>
<td>20</td>
<td>20 dB/div</td>
</tr>
<tr>
<td>Default</td>
<td>10 dB/div</td>
</tr>
</tbody>
</table>

**Example of Use**

To set the scale range to 0.5 dB/div.

```
DISP:SEM:VIEW:WIND:TRAC:Y:PDIV 0.5
```

**Related command**

This command has the same function as the following commands.

:DISPlay:WINDow[1]:TRACe:Y[:SCALe]:[LOGarithmic]:PDIVision

:DISPlay:ACPower:VIEW[1]:WINDow[1]:TRACe:Y[:SCALe]:PDIVision

:DISPlay:CHPower:VIEW[1]:WINDow[1]:TRACe:Y[:SCALe]:PDIVision

:DISPlay:OBWidth:VIEW[1]:WINDow[1]:TRACe:Y[:SCALe]:PDIVision

:DISPlay:BPOWer|:TXPower:VIEW[1]:WINDow[1]:TRACe:Y[:SCALe]:PDIVision
:DISPlay:SEMask:VIEW[1]:WINDow[1]:TRACe:Y[:SCALe]:PDIVision?

Log Scale Range Query

Function

This command queries the Y-axis scale magnification when Scale Mode is set to Log.

Query

:DISPlay:SEMask:VIEW[1]:WINDow[1]:TRACe:Y[:SCALe]:PDIVision?

Response

<rel_ampl>

Parameter

<rel_ampl>  Y-axis scale magnification
  0.1  0.1 dB/div
  0.2  0.2 dB/div
  0.5  0.5 dB/div
  1    1 dB/div
  2    2 dB/div
  5    5 dB/div
  10   10 dB/div
  20   20 dB/div
  Default 10 dB/div

Example of Use

To query the scale magnification.
> 0.5

Related command

This command has the same function as the following commands.
:DISPlay:WINDow[1]:TRACe:Y[:SCALe]:[LOGarithmic]:PDIVision?
:DISPlay:ACPower:VIEW[1]:WINDow[1]:TRACe:Y[:SCALe]:PDIVision?
:DISPlay:CHPower:VIEW[1]:WINDow[1]:TRACe:Y[:SCALe]:PDIVision?
:DISPlay:OBWidth:VIEW[1]:WINDow[1]:TRACe:Y[:SCALe]:PDIVision?
:DISPlay:BFOWer|:TXPower:VIEW[1]:WINDow[1]:TRACe:Y[:SCALe]:PDIVision?
2.13 Spectrum Emission Mask

:DISPlay:SEMask:VIEW[1]:WINDow[1]:TRACe:Y[:SCALe]:RLEVel <real>

Reference Level

Function

This command sets the reference level.

Command

:DISPlay:SEMask:VIEW[1]:WINDow[1]:TRACe:Y[:SCALe]:RLEVel <real>

Parameter

<table>
<thead>
<tr>
<th>&lt;real&gt;</th>
<th>Reference level</th>
</tr>
</thead>
<tbody>
<tr>
<td>Range</td>
<td>Value equivalent to –120 to +50 dBm</td>
</tr>
<tr>
<td>Resolution</td>
<td>0.01 dB (When scale unit settings are dB-system units.)</td>
</tr>
<tr>
<td></td>
<td>0.01 pV (When scale unit settings are V-system units.)</td>
</tr>
<tr>
<td></td>
<td>0.01 yW (When scale unit settings are W-system units.)</td>
</tr>
</tbody>
</table>

<table>
<thead>
<tr>
<th>Suffix code</th>
<th>Value</th>
</tr>
</thead>
<tbody>
<tr>
<td>DBM, DM</td>
<td>dBm</td>
</tr>
<tr>
<td>DBMV</td>
<td>dBmV</td>
</tr>
<tr>
<td>DBUV</td>
<td>dBµV</td>
</tr>
<tr>
<td>DBUVE</td>
<td>dBµV (emf)</td>
</tr>
<tr>
<td>DBUVM</td>
<td>dBµV/m</td>
</tr>
<tr>
<td>V</td>
<td>V</td>
</tr>
<tr>
<td>MV</td>
<td>mV</td>
</tr>
<tr>
<td>UV</td>
<td>µV</td>
</tr>
<tr>
<td>W</td>
<td>W</td>
</tr>
<tr>
<td>MW</td>
<td>mW</td>
</tr>
<tr>
<td>UW</td>
<td>µW</td>
</tr>
<tr>
<td>NW</td>
<td>nW</td>
</tr>
<tr>
<td>PW</td>
<td>pW</td>
</tr>
<tr>
<td>FW</td>
<td>fW</td>
</tr>
</tbody>
</table>

Follows the setting of Scale Unit when omitted.

V is used in Linear scale mode.

Default 0 dBm

Example of Use

To set the reference level to 0 dBm.

DISP:SEM:VIEW:WIND:TRAC:Y:RLEV 0DBM
Related command

This command has the same function as the following commands.

:DISPlay:WINDow[1]:TRACe:Y[:SCALe]:RLEVel
:DISPlay:ACPower:VIEW[1]:WINDow[1]:TRACe:Y[:SCALe]:RLEVel
:DISPlay:CHPower:VIEW[1]:WINDow[1]:TRACe:Y[:SCALe]:RLEVel
:DISPlay:OBWidth:VIEW[1]:WINDow[1]:TRACe:Y[:SCALe]:RLEVel
:DISPlay:BPOWer|:TXPower:VIEW[1]:WINDow[1]:TRACe:Y[:SCALe]:RLEVel
Reference Level Query

Function

This command queries the reference level.

Query

:DISPlay:SEMask:VIEW[1]:WINDow[1]:TRACe:Y[:SCALe]:RLEVel?

Response

<real>

Parameter

<real> Reference level

Range Value equivalent to –120 to +50 dBm
Resolution 0.01 dB (When scale unit settings are dB-system units.)

0.01 pV (When scale unit settings are V-system units.)

0.01 yW (When scale unit settings are W-system units.)

Suffix code None. Value is returned in dbm units.

Example of Use

To query the reference level.


> 0.00

Related command

This command has the same function as the following commands.

:DISPlay:WNDow[1]:TRACe:Y[:SCALe]:RLEVel?

:DISPlay:ACPower:VIEW[1]:WINDow[1]:TRACe:Y[:SCALe]:RLEVel?

:DISPlay:CHPower:VIEW[1]:WINDow[1]:TRACe:Y[:SCALe]:RLEVel?

:DISPlay:OBWidth:VIEW[1]:WINDow[1]:TRACe:Y[:SCALe]:RLEVel?

:DISPlay:BPOWer|:TXPower:VIEW[1]:WINDow[1]:TRACe:Y[:SCALe]:RLEVel?
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:DISPlay:SEM:VIEW[1]:WINDow[1]:PAGE:NUMBer <integer>

Page Number

Function
This command sets the display page number of Spectrum Emission Mask.

Command
:DISPlay:SEM:VIEW[1]:WINDow[1]:PAGE:NUMBer <integer>

Parameter

<integer>  Page number

Range  1 to 2
Resolution  1
Suffix code  None

Example of Use
To set the display page number of Spectrum Emission Mask to 1.
DISP:SEM:VIEW:WIND:PAGE:NUMB 1

:DISPlay:SEM:VIEW[1]:WINDow[1]:PAGE:NUMBeR?

Page Number Query

Function
This command queries the display page number of Spectrum Emission Mask.

Query
:DISPlay:SEM:VIEW[1]:WINDow[1]:PAGE:NUMBer?

Response

<integer>

Parameter

<integer>  Page number

Range  1 to 2
Resolution  1

Example of Use
To query the display page number of Spectrum Emission Mask.
DISP:SEM:VIEW:WIND:PAGE:NUMB?
> 1
This command selects the trigger source.

Command

:TRIGger:SEMask[:SEQuence]:SOURce <source>

Parameter

<source> Trigger signal source

[MS269xA]
EXTernal[1] External input (External)
IMMediate Free run
WIF|RF Burst Wideband IF detection (Wide IF Video)
VIDeo Video detection (Video)
SG SG marker
BBIF Baseband Interface (BBIF)

[MS2830A], [MS2840A]
EXTernal[1] External input (External)
IMMediate Free run
WIF|RF Burst Wideband IF detection (Wide IF Video)
VIDeo Video detection (Video)
SG SG marker
FRAMe Frame period trigger

[MS2850A]
EXTernal[1] External input 1 (External 1)
EXTernal2|EXT2 External input 2 (External 2)
IMMediate Free run
WIF|RF Burst Wideband IF detection (Wide IF Video)
VIDeo Video detection (Video)
FRAMe Frame period trigger

Details

[MS269xA]
SG marker trigger can be selected only when the Option 020/120 Vector Signal Generator is installed.
BBIF trigger cannot be selected only when the Option 040/140 Baseband Interface Unit is not installed or the software package is Ver.6.00.00 or later.

[MS2830A], [MS2840A]
SG marker trigger can be selected only when the Option 020/120/021/121 Vector Signal Generator is installed.

Example of Use

To set the trigger signal source to Video trigger.
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Related command

This command has the same function as the following commands.
:TRIGger[:SEQuence]:SOURce
:TRIGger:ACPowe[:SEQuence]:SOURce
:TRIGger:CHPower[:SEQuence]:SOURce
:TRIGger:OBWidth[:SEQuence]:SOURce
:TRIGger:BPOWer[:SEQuence]:SOURce

:TRIGger:SEMask[:SEQuence]:SOURce?

Trigger Source Query

Function

This command queries the trigger source.

Query

:TRIGger:SEMask[:SEQuence]:SOURce?

Response

<source>

Parameter

<source>  Trigger signal source

[MS269xA]

<table>
<thead>
<tr>
<th>Parameter</th>
<th>Description</th>
</tr>
</thead>
<tbody>
<tr>
<td>EXT</td>
<td>External input (External)</td>
</tr>
<tr>
<td>IMM</td>
<td>Free run</td>
</tr>
<tr>
<td>WIF</td>
<td>Wideband IF detection (Wide IF Video)</td>
</tr>
<tr>
<td>VID</td>
<td>Video detection (Video)</td>
</tr>
<tr>
<td>SG</td>
<td>SG marker</td>
</tr>
<tr>
<td>BBIF</td>
<td>Baseband Interface (BBIF)</td>
</tr>
</tbody>
</table>

[MS2830A], [MS2840A]

<table>
<thead>
<tr>
<th>Parameter</th>
<th>Description</th>
</tr>
</thead>
<tbody>
<tr>
<td>EXT</td>
<td>External input (External)</td>
</tr>
<tr>
<td>IMM</td>
<td>Free run</td>
</tr>
<tr>
<td>WIF</td>
<td>RFB</td>
</tr>
<tr>
<td>VID</td>
<td>Video detection (Video)</td>
</tr>
<tr>
<td>SG</td>
<td>SG marker</td>
</tr>
<tr>
<td>FRAM</td>
<td>Frame period trigger</td>
</tr>
</tbody>
</table>

[MS2850A]

<table>
<thead>
<tr>
<th>Parameter</th>
<th>Description</th>
</tr>
</thead>
<tbody>
<tr>
<td>EXT</td>
<td>External input 1 (External 1)</td>
</tr>
<tr>
<td>EXT2</td>
<td>External input 2 (External 2)</td>
</tr>
<tr>
<td>IMM</td>
<td>Free run</td>
</tr>
<tr>
<td>WIF</td>
<td>RFB</td>
</tr>
</tbody>
</table>
2.13 Spectrum Emission Mask

<table>
<thead>
<tr>
<th>VID</th>
<th>Video detection (Video)</th>
</tr>
</thead>
<tbody>
<tr>
<td>FRAM</td>
<td>Frame period trigger</td>
</tr>
</tbody>
</table>

Details

[MS269xA]
SG marker trigger can be selected only when the Option 020/120 Vector Signal Generator is installed.
BBIF trigger cannot be selected only when the Option 040/140 Baseband Interface Unit is not installed or the software package is Ver.6.00.00 or later.

[MS2830A], [MS2840A]
SG marker trigger can be selected only when the Option 020/120/021/121 Vector Signal Generator is installed.

Example of Use

To query the trigger signal source.
TRIG:SEM:SOUR?
> VID

Related command

This command has the same function as the following commands.
:TRIGger[:SEQUence]:SOURce?
:TRIGger:ACPower[:SEQUence]:SOURce?
:TRIGger:CHPower[:SEQUence]:SOURce?
:TRIGger:OBWidth[:SEQUence]:SOURce?
:TRIGger:BFOWer|:TXPower[:SEQUence]:SOURce?
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[:SENSe]:SEM:Mask:AVERage:COUNt <integer>

Average Count

Function

This command sets the storage count.

Command

[:SENSe]:SEM:Mask:AVERage:COUNt <integer>

Parameter

<integer>  Storage count
Range 2 to 9999
Default 10

Example of Use

To set the storage count to 110.

SEM:AVer:COUN 110

Related command

This command has the same function as the following commands.

[:SENSe]:AVERage:COUNt
[:SENSe]:ACPoweR:AVERage:COUNt
[:SENSe]:CHPoweR:AVERage:COUNt
[:SENSe]:OBWidth:AVERage:COUNt
[:SENSe]:BPOWer|:TXPower:AVERage:COUNt
[:SENSe]:SEMask:AVERage:COUNt?

Average Count Query

Function

This command queries the storage count.

Command

[:SENSe]:SEMask:AVERage:COUNt?

Parameter

<integer> Storage count
- Range: 2 to 9999
- Default: 10

Example of Use

To query the storage count.
SEM:AVER:COUN?
> 110

Related command

This command has the same function as the following commands.
- [:SENSe]:AVERage:COUNt?
- [:SENSe]:ACPower:AVERage:COUNt?
- [:SENSe]:CHPower:AVERage:COUNt?
- [:SENSe]:OBWidth:AVERage:COUNt?
- [:SENSe]:BPOWer|:TXPower:AVERage:COUNt?
[:SENSe]:SEM:AVerage[:STATE] ON|OFF|1|0

Storage Mode

Function

This command sets the storage mode for Trace A.

Command

[:SENSe]:SEM:AVerage[:STATE] <switch>

Parameter

<switch> Setting of Storage Mode
ON|1 Sets Storage Mode to Linear Average.
OFF|0 Sets Storage Mode to Off (Default).

Example of Use

To set the storage mode for Trace A to Off.
SEM:AVer OFF

Related command

This command has the same function as the following commands.
:TRACe[1]|2|3|4|5|6:STORage:MODE
[:SENSe]:ACPower:AVerage[:STATE]
[:SENSe]:CHPower:AVerage[:STATE]
[:SENSe]:OBWidth:AVerage[:STATE]
[:SENSe]:BPowe|:TXPower:AVerage[:STATE]
[:SENSe]:SPURious:AVerage[:STATE]
[:SENSe]:SEMask:AVERage[:STATe]?
Storage Mode Query

Function
This command queries the storage mode for Trace A.

Query
[:SENSe]:SEMask:AVERage[:STATe]?

Response
<switch>

Parameter
<switch>
1
   Linear Average
0
   Other than Linear Average

Example of Use
To query the storage mode for Trace A.
SEM:AVER?
> 0

Related command
This command has the same function as the following commands.
[:SENSe]:ACPower:AVERage[:STATe]?
[:SENSe]:CHPower:AVERage[:STATe]?
[:SENSe]:OBWidth:AVERage[:STATe]?
[:SENSe]:BPOWer|:TXPower:AVERage[:STATe]?
[:SENSe]:SPURious:AVERage[:STATe]?
Chapter 2  SCPI Device Message Details

[:SENSe]:SEMask:RACouple OFF|ON|0|1
Couple Ref & ATT

Function

This command sets the shared setting for Reference Level and Attenuator for Spectrum Emission Mask measurement to On/Off.

Command

[:SENSe]:SEMask:RACouple <switch>

Parameter

<switch>  Shared setting On/Off
ON|1   Sets the shared setting to On.(Default)
OFF|0   Sets the shared setting to Off.

Details

The values set in Reference Level and Attenuator of Reference Setup are set to those of Offset Setup, when this function is set to On.

Example of Use

To set the shared setting of Reference Level and Attenuator for Spectrum Emission Mask measurement to On.
SEM:RAC ON
[:SENSe]:SEMask:RACouple?
Couple Ref & ATT Query

Function

This command sets the shared setting for Reference Level and Attenuator for Spectrum Emission Mask measurement to On/Off.

Query

[:SENSe]:SEMask:RACouple?

Response

<switch>

Parameter

<switch> Shared setting On/Off
   1 Sets the shared setting to On.
   0 Sets the shared setting to Off.

Details

The values set in Reference Level and Attenuator of Reference Setup are set to those of Offset Setup, when this function is set to On.

Example of Use

To query the shared setting of Reference Level and Attenuator for Spectrum Emission Mask measurement.
SEM:RAC?
> 1
Function
This command queries the FFT width that is actually used for the sweep/FFT switch rule during reference power measurement in the Spectrum Emission Mask measurement.

Query
[:SENSe]:SEMask:SWEep[1][:TYPE][:AUTO]:RULes:FFT:RWIDth?

Response
<freq>

Parameter
<freq> FFT width
Range 40 kHz or 2 MHz
Resolution 1 Hz
Suffix code None. Value is returned in Hz units.

Details
This command is not available for MS269x Series.
The specified width is used as the FFT width on a priority basis, but it is automatically changed by the SPAN/RBW/VBW measurement conditions.
This command queries the FFT width that is actually used.

Example of Use
To query the FFT width that is actually used.
SEM:SWE:RUL:FFT:RWID?
> 40000
[:SENSe]:SEMask:OFFSet[1]:LIST:SWEep[1][:TYPE][:AUTO]:RULes:FFT:RWIDth?

Spectrum Emission Mask Offset Sweep Type Select Rules Real FFT Width Query

Function

This command queries the FFT width that is actually used for the sweep/FFT switch rule during offset measurement in the Spectrum Emission Mask measurement.

Query

[SENSe]:SEMask:OFFSet[1]:LIST:SWEep[1][:TYPE][:AUTO]:RULes:FFT:RWIDth?

Response

<freq_1>,<freq_2>,<freq_3>,<freq_4>,<freq_5>,<freq_6>,<freq_7>,<freq_8>,<freq_9>,<freq_10>,<freq_11>,<freq_12>

Parameter

<freq_n> FFT width
Range 40 kHz or 2 MHz
Resolution 1 Hz
Suffix code None. Value is returned in Hz units.

Details

This command is not available for MS269x Series. The specified width is used as the FFT width on a priority basis, but it is automatically changed by the SPAN/RBW/VBW measurement conditions. This command queries the FFT width that is actually used.

Example of Use

To query the FFT width that is actually used.
>
40000,40000,40000,40000,40000,40000,40000,40000,40000,40000,40000,40000,40000
Chapter 2  SCPI Device Message Details

[:SENSe]:SEMask:SWEep[1][:TYPE][:AUTO]:RULes:RTYPe?
Spectrum Emission Mask Sweep Type Select Rules Real Type Query

Function
This command queries the sweep mode (sweep or FFT) that is executed during reference power measurement in the Spectrum Emission Mask measurement.

Query
[:SENSe]:SEMask:SWEep[1][:TYPE][:AUTO]:RULes:RTYPe?

Response
<type>

Parameter
<type>
  Sweep mode
  SWE  Performs measurement using sweep.
  FFT  Performs measurement using FFT.

Details
This command is not available for MS269x Series.

Example of Use
To query the sweep type used for measurement under the current setting.
SEM:SWE:RUL:RTYP?
> FFT

[:SENSe]:SEMask:OFFSet[1]:LIST:SWEep[1][:TYPE][:AUTO]:RULes:RTYPe?
Spectrum Emission Mask Offset Sweep Type Select Rules Real Type Query

Function
This command queries the sweep mode (sweep or FFT) that is executed during offset measurement in the Spectrum Emission Mask measurement.

Query
[:SENSe]:SEMask:OFFSet[1]:LIST:SWEep[1][:TYPE][:AUTO]:RULes:RTYPe?

Response
<type_1>,<type_2>,<type_3>,<type_4>,<type_5>,<type_6>, 
2.13 Spectrum Emission Mask

\(<\text{type}_7>, <\text{type}_8>, <\text{type}_9>, <\text{type}_{10}>, <\text{type}_{11}>, <\text{type}_{12}>\)

Parameter

\(<\text{type}_n>\)

- **SWE**
  - Sweep mode
  - Performs measurement using sweep.
- **FFT**
  - Performs measurement using FFT.

Details

This command is not available for MS269x Series.

Example of Use

To query the sweep type used for measurement under the current setting.

```
SEM:OFFS:LIST:SWE:RUL:RTYP?
> FFT,FFT,FFT,FFT,FFT,FFT,FFT,FFT,FFT,FFT
```
## 2.14 Spurious Emission Measurement Function

Table 2.14-1 lists device messages for setting the Spurious Emission measurement functions.

<table>
<thead>
<tr>
<th>Function</th>
<th>Device Message</th>
</tr>
</thead>
<tbody>
<tr>
<td>Measure Spurious Emission</td>
<td>[:SENSe]:SPURious[:STATe] ON</td>
</tr>
<tr>
<td></td>
<td>[:SENSe]:SPURious[:STATe]?</td>
</tr>
<tr>
<td>Spurious Emission Result Type</td>
<td>[:SENSe]:SPURious:TYPE WORst</td>
</tr>
<tr>
<td></td>
<td>[:SENSe]:SPURious:TYPE?</td>
</tr>
<tr>
<td>Displayed Segment Mode</td>
<td>:DISPLAY:SPURious:SEGment:MODE ON</td>
</tr>
<tr>
<td></td>
<td>:DISPLAY:SPURious:SEGment:MODE?</td>
</tr>
<tr>
<td>Displayed Segment</td>
<td>:DISPLAY:SPURious:SEGment &lt;integer&gt;</td>
</tr>
<tr>
<td></td>
<td>:DISPLAY:SPURious:SEGment?</td>
</tr>
<tr>
<td>Page of Summary Auto/Manual</td>
<td>:DISPLAY:SPURious:SEGment:AUTO ON</td>
</tr>
<tr>
<td></td>
<td>:DISPLAY:SPURious:SEGment:AUTO?</td>
</tr>
<tr>
<td>Displayed Summary Table</td>
<td>:DISPLAY:SPURious:STABle RESult</td>
</tr>
<tr>
<td></td>
<td>:DISPLAY:SPURious:STABle?</td>
</tr>
<tr>
<td>Next Page</td>
<td>:DISPLAY:SPURious:SEGment:NEXT</td>
</tr>
<tr>
<td>Previous Page</td>
<td>:DISPLAY:SPURious:SEGment:PREVious</td>
</tr>
<tr>
<td>Displayed Restart Query</td>
<td>:DISPLAY:SPURious:SEGment:RESTart?</td>
</tr>
<tr>
<td>Time Domain Measurement</td>
<td>[:SENSe]:SPURious:TDOMain:SPAN:ZERO ON</td>
</tr>
<tr>
<td></td>
<td>[:SENSe]:SPURious:TDOMain:SPAN:ZERO?</td>
</tr>
<tr>
<td>Fail Stop</td>
<td>[:SENSe]:SPURious:FSTop ON</td>
</tr>
<tr>
<td></td>
<td>[:SENSe]:SPURious:FSTop?</td>
</tr>
<tr>
<td>Edit Segment Number</td>
<td>[:SENSe]:SPURious:SEGment:NUMBer &lt;integer&gt;</td>
</tr>
<tr>
<td></td>
<td>[:SENSe]:SPURious:SEGment:NUMBer?</td>
</tr>
<tr>
<td>Segment On/Off</td>
<td>[:SENSe]:SPURious[:RANGe][:LIST]:SEGment:STATe ON</td>
</tr>
<tr>
<td></td>
<td>[:SENSe]:SPURious[:RANGe][:LIST]:SEGment:STATe ON</td>
</tr>
<tr>
<td></td>
<td>[:SENSe]:SPURious[:RANGe][:LIST]:SEGment:STATe ON</td>
</tr>
<tr>
<td></td>
<td>[:SENSe]:SPURious[:RANGe][:LIST]:SEGment:STATe ON</td>
</tr>
<tr>
<td></td>
<td>[:SENSe]:SPURious[:RANGe][:LIST]:SEGment:STATe?</td>
</tr>
<tr>
<td>Spurious Emission Start Frequency</td>
<td>[:SENSe]:SPURious[:RANGe][:LIST]:FREQuency:STARt &lt;freq_1&gt;,&lt;freq_2&gt;,&lt;freq_3&gt;,&lt;freq_4&gt;,&lt;freq_5&gt;,&lt;freq_6&gt;,&lt;freq_7&gt;,&lt;freq_8&gt;,&lt;freq_9&gt;,&lt;freq_10&gt;,&lt;freq_11&gt;,&lt;freq_12&gt;,&lt;freq_13&gt;,&lt;freq_14&gt;,&lt;freq_15&gt;,&lt;freq_16&gt;,&lt;freq_17&gt;,&lt;freq_18&gt;,&lt;freq_19&gt;,&lt;freq_20&gt;</td>
</tr>
</tbody>
</table>
|                                  | [:SENSe]:SPURious[:RANGe][:LIST]:FREQuency:STARt?
2.14 Spurious Emission Measurement Function
Table 2.14-1 Device Messages for Spurious Emission Measurement Function (Cont’d)
Function

Spurious Emission
Stop Frequency

Device Message
[:SENSe]:SPURious[:RANGe][:LIST]:FREQuency:STOP
<freq_1>,<freq_2>,<freq_3>,<freq_4>,<freq_5>,<freq_6>,<freq_7>,<fre
q_8>,<freq_9>,<freq_10>,<freq_11>,<freq_12>,<freq_13>,<freq_14>,<fr
eq_15>,<freq_16>,<freq_17>,<freq_18>,<freq_19>,<freq_20>
[:SENSe]:SPURious[:RANGe][:LIST]:FREQuency:STOP?

:DISPlay:SPURious:VIEW[1]:WINDow[1]:TRACe:Y[:SCALe]:RLEVel?

Spurious Emission
Attenuator

[:SENSe]:SPURious:ATTenuation
<rel_ampl>|AUTO,<rel_ampl>|AUTO,<rel_ampl>|AUTO,<rel_ampl>|AUTO,<re
l_ampl>|AUTO,<rel_ampl>|AUTO,<rel_ampl>|AUTO,<rel_ampl>|AUTO,<rel_a
mpl>|AUTO,<rel_ampl>|AUTO,<rel_ampl>|AUTO,<rel_ampl>|AUTO,<rel_ampl
>|AUTO,<rel_ampl>|AUTO,<rel_ampl>|AUTO,<rel_ampl>|AUTO,<rel_ampl>|A
UTO,<rel_ampl>|AUTO,<rel_ampl>|AUTO,<rel_ampl>|AUTO
[:SENSe]:SPURious:ATTenuation?

Spurious Emission
Resolution
Bandwidth
Auto/Manual

[:SENSe]:SPURious[:RANGe][:LIST]:BANDwidth[:RESolution]:AUTO
ON|OFF|1|0,ON|OFF|1|0,ON|OFF|1|0,ON|OFF|1|0,ON|OFF|1|0,
ON|OFF|1|0,ON|OFF|1|0,ON|OFF|1|0,ON|OFF|1|0,ON|OFF|1|0,
ON|OFF|1|0,ON|OFF|1|0,ON|OFF|1|0,ON|OFF|1|0,ON|OFF|1|0,
ON|OFF|1|0,ON|OFF|1|0,ON|OFF|1|0,ON|OFF|1|0,ON|OFF|1|0

[:SENSe]:SPURious[:RANGe][:LIST]:BANDwidth[:RESolution]:AUTO?

Spurious Emission
Resolution
Bandwidth

[:SENSe]:SPURious[:RANGe][:LIST]:BANDwidth[:RESolution]
<bandwidth_1>,<bandwidth_2>,<bandwidth_3>,<bandwidth_4>,<bandwidth_
5>,<bandwidth_6>,<bandwidth_7>,<bandwidth_8>,<bandwidth_9>,<bandwid
th_10>,<bandwidth_11>,<bandwidth_12>,<bandwidth_13>,<bandwidth_14>,
<bandwidth_15>,<bandwidth_16>,<bandwidth_17>,<bandwidth_18>,<bandwi
dth_19>,<bandwidth_20>
[:SENSe]:SPURious[:RANGe][:LIST]:BANDwidth[:RESolution]?

Spurious Emission
Video Bandwidth
Auto/Manual

[:SENSe]:SPURious[:RANGe][:LIST]:BANDwidth:VIDeo:AUTO
ON|OFF|1|0,ON|OFF|1|0,ON|OFF|1|0,ON|OFF|1|0,ON|OFF|1|0,
ON|OFF|1|0,ON|OFF|1|0,ON|OFF|1|0,ON|OFF|1|0,ON|OFF|1|0,
ON|OFF|1|0,ON|OFF|1|0,ON|OFF|1|0,ON|OFF|1|0,ON|OFF|1|0,
ON|OFF|1|0,ON|OFF|1|0,ON|OFF|1|0,ON|OFF|1|0,ON|OFF|1|0
[:SENSe]:SPURious[:RANGe][:LIST]:BANDwidth:VIDeo:AUTO?

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SCPI Device Message Details

Spurious Emission
Reference Level

:DISPlay:SPURious:VIEW[1]:WINDow[1]:TRACe:Y[:SCALe]:RLEVel
<real_1>,<real_2>,<real_3>,<real_4>,<real_5>,<real_6>,<real_7>,<rea
l_8>,<real_9>,<real_10>,<real_11>,<real_12>,<real_13>,<real_14>,<re
al_15>,<real_16>,<real_17>,<real_18>,<real_19>,<real_20>

2


### Table 2.14-1  Device Messages for Spurious Emission Measurement Function (Cont’d)

<table>
<thead>
<tr>
<th>Function</th>
<th>Device Message</th>
</tr>
</thead>
<tbody>
<tr>
<td>Spurious Emission Video Bandwidth</td>
<td>[:SENSe]:SPURious[:RANGe][:LIST]:BANDwidth:VIDeo</td>
</tr>
<tr>
<td>Spurious Emission Sweep Time Auto/Manual</td>
<td>[:SENSe]:SPURious[:RANGe][:LIST]:SWEep:TIME:AUTO</td>
</tr>
<tr>
<td>Spurious Emission Sweep Time</td>
<td>[:SENSe]:SPURious[:RANGe][:LIST]:SWEep:TIME</td>
</tr>
<tr>
<td>Pause before Sweep</td>
<td>[:SENSe]:SPURious[:RANGe][:LIST]:SWEep:PAUSe</td>
</tr>
</tbody>
</table>
| Spurious Emission Preamp On/Off | [:SENSe]:SPURious:POWer[:RF]:GAIN[:STATe] |<br> <br>[:SENSe]:SPURious:POWer[:RF]:GAIN[:STATe]?
### Table 2.14-1  Device Messages for Spurious Emission Measurement Function (Cont’d)

<table>
<thead>
<tr>
<th>Function</th>
<th>Device Message</th>
</tr>
</thead>
<tbody>
<tr>
<td>Spurious Emission Detection Mode</td>
<td>[:SENSe]:SPURious[:RANGE][:LIST]:DETector[1][:FUNCTION] NORMal</td>
</tr>
<tr>
<td></td>
<td>[:SENSe]:SPURious[:RANGE][:LIST]:DETector[1][:FUNCTION]?</td>
</tr>
<tr>
<td>Spurious Emission Trace Point</td>
<td>[:SENSe]:SPURious[:RANGE][:LIST]:SWEep:POINts &lt;integer_1&gt;,&lt;integer_2&gt;,&lt;integer_3&gt;,&lt;integer_4&gt;,&lt;integer_5&gt;,&lt;integer_6&gt;,&lt;integer_7&gt;,&lt;integer_8&gt;,&lt;integer_9&gt;,&lt;integer_10&gt;,&lt;integer_11&gt;,&lt;integer_12&gt;,&lt;integer_13&gt;,&lt;integer_14&gt;,&lt;integer_15&gt;,&lt;integer_16&gt;,&lt;integer_17&gt;,&lt;integer_18&gt;,&lt;integer_19&gt;,&lt;integer_20&gt;</td>
</tr>
<tr>
<td></td>
<td>[:SENSe]:SPURious[:RANGE][:LIST]:SWEep:POINts?</td>
</tr>
<tr>
<td>Couple Storage Count</td>
<td>[:SENSe]:SPURious:AVErage:COUNt:COUPle ON</td>
</tr>
<tr>
<td></td>
<td>[:SENSe]:SPURious:AVErage:COUNt:COUPle?</td>
</tr>
<tr>
<td>Spurious Emission Storage Count</td>
<td>[:SENSe]:SPURious[:RANGE][:LIST]:AVERage:COUNt &lt;integer_1&gt;,&lt;integer_2&gt;,&lt;integer_3&gt;,&lt;integer_4&gt;,&lt;integer_5&gt;,&lt;integer_6&gt;,&lt;integer_7&gt;,&lt;integer_8&gt;,&lt;integer_9&gt;,&lt;integer_10&gt;,&lt;integer_11&gt;,&lt;integer_12&gt;,&lt;integer_13&gt;,&lt;integer_14&gt;,&lt;integer_15&gt;,&lt;integer_16&gt;,&lt;integer_17&gt;,&lt;integer_18&gt;,&lt;integer_19&gt;,&lt;integer_20&gt;</td>
</tr>
<tr>
<td></td>
<td>[:SENSe]:SPURious[:RANGE][:LIST]:AVERage:COUNt?</td>
</tr>
<tr>
<td>Use Common Correction Table</td>
<td>:CALCulate:SPURious[:RANGE][:LIST]:CORRection:COMMon &lt;segment&gt;</td>
</tr>
<tr>
<td>Recall Correction Table</td>
<td>:CALCulate:SPURious[:RANGE][:LIST]:CORRection:RECall &lt;segment&gt;,&lt;filename&gt;[,&lt;device&gt;]</td>
</tr>
</tbody>
</table>
### Table 2.14-1 Device Messages for Spurious Emission Measurement Function (Cont’d)

<table>
<thead>
<tr>
<th>Function</th>
<th>Device Message</th>
</tr>
</thead>
<tbody>
<tr>
<td><strong>Spurious Emission Limit Start Level</strong></td>
<td>:CALCulate:SPURious[:RANGE][:LIST]:LIMit:ABSolute[:UPPer]:DATA[:STATefrom here onwards]</td>
</tr>
<tr>
<td></td>
<td>&lt;ampl_1&gt;,&lt;ampl_2&gt;,&lt;ampl_3&gt;,&lt;ampl_4&gt;,&lt;ampl_5&gt;,&lt;ampl_6&gt;,&lt;ampl_7&gt;,&lt;ampl_8&gt;,&lt;ampl_9&gt;,&lt;ampl_10&gt;,&lt;ampl_11&gt;,&lt;ampl_12&gt;,&lt;ampl_13&gt;,&lt;ampl_14&gt;,&lt;ampl_15&gt;,&lt;ampl_16&gt;,&lt;ampl_17&gt;,&lt;ampl_18&gt;,&lt;ampl_19&gt;,&lt;ampl_20&gt;</td>
</tr>
<tr>
<td><strong>Spurious Emission Limit Stop Level Auto/Manual</strong></td>
<td>:CALCulate:SPURious[:RANGE][:LIST]:LIMit:ABSolute[:UPPer]:DATA:STOP:</td>
</tr>
<tr>
<td><strong>Spurious Emission Limit Stop Level</strong></td>
<td>:CALCulate:SPURious[:RANGE][:LIST]:LIMit:ABSolute[:UPPer]:DATA:STOP:</td>
</tr>
<tr>
<td><strong>Spurious Emission Search Resolution</strong></td>
<td>[:SENSe]:SPURious[:RANGE][:LIST]:PEAK:RESolution</td>
</tr>
<tr>
<td><strong>Spurious Emission Search Threshold Level</strong></td>
<td>[:SENSe]:SPURious[:RANGE][:LIST]:PEAK:THReshold&lt;real_1&gt;,&lt;real_2&gt;,&lt;real_3&gt;,&lt;real_4&gt;,&lt;real_5&gt;,&lt;real_6&gt;,&lt;real_7&gt;,&lt;real_8&gt;,&lt;real_9&gt;,&lt;real_10&gt;,&lt;real_11&gt;,&lt;real_12&gt;,&lt;real_13&gt;,&lt;real_14&gt;,&lt;real_15&gt;,&lt;real_16&gt;,&lt;real_17&gt;,&lt;real_18&gt;,&lt;real_19&gt;,&lt;real_20&gt;</td>
</tr>
<tr>
<td><strong>Spurious Emission Couple Segment RBW</strong></td>
<td>[:SENSe]:SPURious:TDOMain[:RANGE][:LIST]:BANDwidth[:RESolution]:COU PLe ON</td>
</tr>
</tbody>
</table>

---

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2.14 Spurious Emission Measurement Function
Table 2.14-1 Device Messages for Spurious Emission Measurement Function (Cont’d)
Function

Spurious Emission
Time Domain
RBW

Device Message
[:SENSe]:SPURious:TDOMain:[:RANGe][:LIST]:BANDwidth[:RESolution]
<bandwidth_1>,<bandwidth_2>,<bandwidth_3>,<bandwidth_4>,<bandwidth_
5>,<bandwidth_6>,<bandwidth_7>,<bandwidth_8>,<bandwidth_9>,<bandwid
th_10>,<bandwidth_11>,<bandwidth_12>,<bandwidth_13>,<bandwidth_14>,
<bandwidth_15>,<bandwidth_16>,<bandwidth_17>,<bandwidth_18>,<bandwi
dth_19>,<bandwidth_20>

Spurious Emission
Couple Segment
VBW

[:SENSe]:SPURious:TDOMain[:RANGe][:LIST]:BANDwidth:VIDeo:COUPle
ON|OFF|1|0,ON|OFF|1|0,ON|OFF|1|0,ON|OFF|1|0,ON|OFF|1|0,
ON|OFF|1|0,ON|OFF|1|0,ON|OFF|1|0,ON|OFF|1|0,ON|OFF|1|0,
ON|OFF|1|0,ON|OFF|1|0,ON|OFF|1|0,ON|OFF|1|0,ON|OFF|1|0,
ON|OFF|1|0,ON|OFF|1|0,ON|OFF|1|0,ON|OFF|1|0,ON|OFF|1|0

[:SENSe]:SPURious:TDOMain[:RANGe][:LIST]:BANDwidth:VIDeo:COUPle?

Spurious Emission
Time Domain
VBW

[:SENSe]:SPURious:TDOMain[:RANGe][:LIST]:BANDwidth:VIDeo
<bandwidth_1>|OFF,<bandwidth_2>|OFF,<bandwidth_3>|OFF,<bandwidth_4>
|OFF,<bandwidth_5>|OFF,<bandwidth_6>|OFF,<bandwidth_7>|OFF,<bandwid
th_8>|OFF,<bandwidth_9>|OFF,<bandwidth_10>|OFF,<bandwidth_11>|OFF,<
bandwidth_12>|OFF,<bandwidth_13>|OFF,<bandwidth_14>|OFF,<bandwidth_
15>|OFF,<bandwidth_16>|OFF,<bandwidth_17>|OFF,<bandwidth_18>|OFF,<b
andwidth_19>|OFF,<bandwidth_20>|OFF
[:SENSe]:SPURious:TDOMain[:RANGe][:LIST]:BANDwidth:VIDeo?

Spurious Emission
Time Domain
Sweep Time

[:SENSe]:SPURious:TDOMain[:RANGe][:LIST]:SWEep:TIME
<seconds_1>,<seconds_2>,<seconds_3>,<seconds_4>,<seconds_5>,<second
s_6>,<seconds_7>,<seconds_8>,<seconds_9>,<seconds_10>,<seconds_11>,
<seconds_12>,<seconds_13>,<seconds_14>,<seconds_15>,<seconds_16>,<s
econds_17>,<seconds_18>,<seconds_19>,<seconds_20>
[:SENSe]:SPURious:TDOMain[:RANGe][:LIST]:SWEep:TIME?

Spurious Emission
Time Domain
Detection

[:SENSe]:SPURious:TDOMain[:RANGe][:LIST]:DETector[1][:FUNCtion]
POSitive|SAMPle|NEGative,POSitive|SAMPle|NEGative,
POSitive|SAMPle|NEGative,POSitive|SAMPle|NEGative,
POSitive|SAMPle|NEGative,POSitive|SAMPle|NEGative,
POSitive|SAMPle|NEGative,POSitive|SAMPle|NEGative,
POSitive|SAMPle|NEGative,POSitive|SAMPle|NEGative,
POSitive|SAMPle|NEGative,POSitive|SAMPle|NEGative,
POSitive|SAMPle|NEGative,POSitive|SAMPle|NEGative,
POSitive|SAMPle|NEGative,POSitive|SAMPle|NEGative,
POSitive|SAMPle|NEGative,POSitive|SAMPle|NEGative,
POSitive|SAMPle|NEGative,POSitive|SAMPle|NEGative

[:SENSe]:SPURious:TDOMain[:RANGe][:LIST]:DETector[1][:FUNCtion]?
Save Spurious
Emission
Parameter

:MMEMory:STORe:SPURious:TABLe <register>

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SCPI Device Message Details

[:SENSe]:SPURious:TDOMain[:RANGe][:LIST]:BANDwidth[:RESolution]?

2


### Table 2.14-1 Device Messages for Spurious Emission Measurement Function (Cont’d)

<table>
<thead>
<tr>
<th>Function</th>
<th>Device Message</th>
</tr>
</thead>
<tbody>
<tr>
<td>Recall Spurious Emission Parameter</td>
<td>:MMEMory:LOAD:SPURious:TABLE &lt;register&gt;</td>
</tr>
<tr>
<td>Spurious Emission Configure</td>
<td>:CONFigure:SPURious</td>
</tr>
<tr>
<td>Spurious Emission Initiate</td>
<td>:INITiate:SPURious</td>
</tr>
<tr>
<td>Spurious Emission Fetch</td>
<td>:FETCH:SPURious[n]?</td>
</tr>
<tr>
<td>Spurious Emission Read</td>
<td>:READ:SPURious[n]?</td>
</tr>
<tr>
<td>Spurious Emission Measure</td>
<td>:MEASURE:SPURious[n]?</td>
</tr>
<tr>
<td>Spurious Emission Title Entry</td>
<td>:DISPLAY:SPURious:ANNotation:TITLE:DATA &lt;string&gt;</td>
</tr>
<tr>
<td>Spurious Emission Log Scale Range</td>
<td>:DISPLAY:SPURious:VIEW[1]:WINDow[1]:TRACe:Y[:SCALe]:PDIVision &lt;rel_ampl&gt;</td>
</tr>
<tr>
<td>Spurious Emission Storage Mode</td>
<td>[:SENSe]:SPURious:AVERage[:STATE] ON</td>
</tr>
<tr>
<td>Spurious Emission Trigger Source</td>
<td>:TRIGger:SPURious[:SEQUence]:SOURce EXTer nal[1]</td>
</tr>
<tr>
<td>Spurious Emission Zone Marker Frequency (Time)</td>
<td>:CALCulate:SPURious:MARKer[1]</td>
</tr>
<tr>
<td></td>
<td>:CALCulate:SPURious:MARKer[1]</td>
</tr>
</tbody>
</table>
### Table 2.14-1 Device Messages for Spurious Emission Measurement Function (Cont’d)

<table>
<thead>
<tr>
<th>Function</th>
<th>Device Message</th>
</tr>
</thead>
<tbody>
<tr>
<td>Spurious Emission All Marker Off</td>
<td>:CALCulate:SPURious:MARKer:AOFF</td>
</tr>
<tr>
<td>Spurious Emission Auto Sweep Time Mode</td>
<td>[:SENSe]:SPURious:SWEep:TIME:AUTO:MODE NORMal</td>
</tr>
<tr>
<td></td>
<td>[:SENSe]:SPURious:SWEep:TIME:AUTO:MODE?</td>
</tr>
<tr>
<td>Spurious Emission Relative To</td>
<td>:CALCulate:SPURious:MARKer[1]</td>
</tr>
<tr>
<td></td>
<td>:CALCulate:SPURious:MARKer[1]</td>
</tr>
<tr>
<td>Spurious Emission Couple Zone</td>
<td>:CALCulate:SPURious:MARKer:COUPle[:STATe] ON</td>
</tr>
<tr>
<td></td>
<td>:CALCulate:SPURious:MARKer:COUPle[:STATe]?</td>
</tr>
<tr>
<td>Spurious Emission Continue</td>
<td>:INITiate:SPURious:PAUSE:CONTinue</td>
</tr>
<tr>
<td>Spurious Emission Pause Status Query</td>
<td>:INITiate:SPURious:PAUSE:STATe?</td>
</tr>
<tr>
<td>Low Phase Noise for Spurious Emission Measurement</td>
<td>[:SENSe]:SPURious:SYNThesis:LPHase ON</td>
</tr>
<tr>
<td></td>
<td>[:SENSe]:SPURious:SYNThesis:LPHase?</td>
</tr>
<tr>
<td>Low Phase Noise Status Query</td>
<td>[:SENSe]:FREquency:SYNThesis:LPHase:STATe??</td>
</tr>
</tbody>
</table>
[:SENSe]:SPURious[:STATe] ON|OFF|1|0

Measure Spurious Emission

Function

This command executes the Spurious Emission measurement.

Command

[:SENSe]:SPURious[:STATe] <switch>

Parameter

<switch> Spurious measurement On/Off
ON|1 Spurious measurement is enabled.
OFF|0 Spurious measurement is disabled.

Details

This command is not available in the following cases:

• When Scale Mode is set to Lin.
• In Time Domain

If the Spurious Emission measurement is set to On, then the active trace is set to A.

Example of Use

To set the Spurious measurement to On.

SPUR ON
2.14 Spurious Emission Measurement Function

[:SENSe]:SPUrious[:STATe]?
Measure Spurious Emission Query

Function
This command queries the On/Off state of the Spurious Emission measurement.

Query
[:SENSe]:SPUrious[:STATe]?

Response
<switch>

Parameter
<switch> Spurious measurement On/Off
1 On
0 Off

Example of Use
To query the On/Off state of the Spurious measurement.
SPUR?
> 1
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[:SENSe]:SPURious:TYPE WORSt|EXAMine|PEAKs|FULL

Spurious Emission Result Type

Function

This command selects the measurement result type.

Command

[:SENSe]:SPURious:TYPE <type>

Parameter

<type>  Measurement result type
   WORSt|EXAMine  Point with the least margin from the limit line is displayed.
   PEAKs|FULL    Spurious detected by the detection resolution and the threshold set in each segment is displayed.

Default  Worst

Details

This command is not available during the Time Domain measurement.

Example of Use

To display the point with the least margin from the limit line.

SPUR:TYPE EXAM
2.14 Spurious Emission Measurement Function

[:SENSe]:SPURious:TYPE?
Spurious Emission Result Type Query

Function

This command queries the measurement result type.

Query

[:SENSe]:SPURious:TYPE?

Response

<type>

Parameter

<type> Measurement result type

WORS Point with the least margin from the limit line is displayed.

PEAK Spurious detected by the detection resolution and the threshold set in each segment is displayed.

Example of Use

To query the measurement result type.
SPUR:TYPE?
> EXAM

:DISPlay:SPURious:SEGMent:MODE ON|OFF|1|0
Displayed Segment Mode

Function

This command switches the display mode of a segment.

Command

:DISPlay:SPURious:SEGment:MODE <switch>

Parameter

<switch> Display mode

ON|1 Auto

OFF|0 Manual

Example of Use

To set the display mode of a segment to Auto.
DISP:SPUR:SEG:M:MODE ON
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*:DISPlay:SPURious:SEGMen?:MODE?*

Displayed Segment Mode Query

**Function**
This command queries the display mode of a segment.

**Query**
*:DISPlay:SPURious:SEGMen?:MODE?*

**Response**
<switch>

**Parameter**

<table>
<thead>
<tr>
<th>&lt;switch&gt;</th>
<th>Display mode</th>
</tr>
</thead>
<tbody>
<tr>
<td>1</td>
<td>Auto</td>
</tr>
<tr>
<td>0</td>
<td>Manual</td>
</tr>
</tbody>
</table>

**Example of Use**
To query the display mode of a segment.
DISP:SPUR:SEG:M
> 1

*:DISPlay:SPURious:SEGMen <integer>*

Displayed Segment

**Function**
This command specifies the segment to display the trace data in.

**Command**
*:DISPlay:SPURious:SEGMen <integer>*

**Parameter**

<table>
<thead>
<tr>
<th>&lt;integer&gt;</th>
<th>Segment</th>
</tr>
</thead>
<tbody>
<tr>
<td>Range</td>
<td>1 to 20</td>
</tr>
<tr>
<td>Resolution</td>
<td>1</td>
</tr>
</tbody>
</table>

**Details**
A segment which is set to Off cannot be selected.
This command is not available during measurement and when the displayed segment mode is set to Auto.
Example of Use

To specify 2 as the segment in which the trace data is displayed.

```
DISP:SPUR:SEGM 2
```

:DISPlay:SPURious:SEGMen? Displayed Segment Query

Function

This command queries the segment to display the trace data in.

Query

:DISPlay:SPURious:SEGMen?

Response

<integer>

Parameter

<table>
<thead>
<tr>
<th>&lt;integer&gt;</th>
<th>Segment</th>
</tr>
</thead>
<tbody>
<tr>
<td>Range</td>
<td>1 to 20</td>
</tr>
<tr>
<td>Resolution</td>
<td>1</td>
</tr>
</tbody>
</table>

Example of Use

To query the segment to display the trace data in.

```
DISP:SPUR:SEGM?
> 2
```
:DISPlay:SPURious:SEGMen:UTO ON|OFF|1|0
Page of Summary Auto/Manual

Function
This command turns on/off the summary page auto numbering.

Command
:DISPlay:SPURious:SEGMen:UTO <switch>

Parameter

<table>
<thead>
<tr>
<th>&lt;switch&gt;</th>
<th>Auto mode On/Off</th>
</tr>
</thead>
<tbody>
<tr>
<td>ON</td>
<td>1</td>
</tr>
<tr>
<td>OFF</td>
<td>0</td>
</tr>
</tbody>
</table>

Details
Auto mode makes it possible to display the page on which the segment set in Displayed Segment is.

Example of Use
To turn on the summary page auto numbering.
DISP:SPUR:SEG:UTO ON

:DISPlay:SPURious:SEGMen:UTO?
Page of Summary Auto/Manual Query

Function
This command queries the On/Off state of the summary page auto numbering.

Query
:DISPlay:SPURious:SEGMen:UTO?

Response

Parameter

<table>
<thead>
<tr>
<th>&lt;switch&gt;</th>
<th>Automatic setting On/Off</th>
</tr>
</thead>
<tbody>
<tr>
<td>1</td>
<td>On</td>
</tr>
<tr>
<td>0</td>
<td>Off</td>
</tr>
</tbody>
</table>
Example of Use

To query the On/Off state of the summary page auto numbering.

```
DISP:SPUR:SEG:AUTO?
> 1
```

**:DISPlay:SPURious:STABle RESult|RANGe**

Displayed Summary Table

Function

This command sets the content to be displayed in the Summary Table.

Command

```
:DISPlay:SPURious:STABle <mode>
```

Parameter

```
<mode>  The contents displayed for Summary Table.
RESult  Measurement result for each segment (Default)
RANGe  Frequency range for each segment
```

Example of Use

To display the measurement result in the Summary Table

```
DISP:SPUR:STAB RES
```

**:DISPlay:SPURious:STABle?**

Displayed Summary Table Query

Function

This command queries the content setting in the Summary Table.

Query

```
:DISPlay:SPURious:STABle?
```

Response

```
<mode>
```

Parameter

```
<mode>  The contents displayed for Summary Table.
RES  Measurement result for each segment
RANG  Frequency range for each segment
```
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Example of Use

To query the content setting in the Summary Table.
DISP:SPUR:STAB?
>RES

:DISPlay:SPURious:SEGment:NEXT

Next Page

Function
This command displays the summary on the next page.

Command
:DISPlay:SPURious:SEGment:NEXT

Details
The summary set in Result Type is displayed.

Example of Use
To display the summary on the next page.
DISP:SPUR:SEG:NEXT

:DISPlay:SPURious:SEGment:PREVious

Previous Page

Function
This command displays the summary on the previous page.

Command
:DISPlay:SPURious:SEGment:PREVious

Details
The summary set in Result Type is displayed.

Example of Use
To display the summary on the previous page.
DISP:SPUR:SEG:PREV


2.14 Spurious Emission Measurement Function

:DISPlay:SPURious:SEGMent:RESTart?
Displayed Restart Query

Function

This command queries whether the remeasurement message is displayed on the trace.

Query

:DISPlay:SPURious:SEGMent:RESTart?

Response

<switch>

Parameter

<switch> Message displayed/not displayed
   1    Message is displayed.
   0    Message is not displayed.

Details

When the sweep has paused and Spurious Emission is set to On, switch Time Domain Measurement into On. Then the remeasurement message ,“Please sweep again.”, is displayed.

Example of Use

To query whether the remeasurement message is displayed on the trace.
DISP:SPUR:SEGM:REST?
> 1
[:SENSe]:SPURious:TDOMain:SPAN:ZERO ON|OFF|1|0
Time Domain Measurement

Function
This command sets whether to measure the spurious power by using Time Domain.

Command
[:SENSe]:SPURious:TDOMain:SPAN:ZERO <switch>

Parameter
<switch> Time Domain measurement On/Off
ON|1 Sets Time Domain measurement to On.
OFF|0 Sets Time Domain measurement to Off.

Example of Use
To measure the spurious power by using Time Domain.
SPUR:TDOM:SPAN:ZERO ON

[:SENSe]:SPURious:TDOMain:SPAN:ZERO?
Time Domain Measurement

Function
This command queries the On/Off state of Time Domain mode for the spurious power.

Query
[:SENSe]:SPURious:TDOMain:SPAN:ZERO?

Response
<switch>

Parameter
<switch> Time Domain measurement On/Off
1 On
0 Off

Example of Use
To query the On/Off state of Time Domain mode.
SPUR:TDOM:SPAN:ZERO?
> 1
[SENSe]:SPURious:FSTop ON|OFF|1|0

Fail Stop Function

This command sets whether to stop the measurement when a “Fail” segment has been found.

Command

[:SENSe]:SPURious:FStop <switch>

Parameter

<switch> Fail Stop On/Off
ON|1 Sets Fail Stop to On.
OFF|0 Sets Fail Stop to Off.

Example of Use

To stop the measurement when a “Fail” segment has been found.
SPUR:FSTop ON

[:SENSe]:SPURious:FSTop?

Fail Stop Query Function

This command queries the On/Off state of Fail Stop.

Query

[:SENSe]:SPURious:FSTop?

Response

<switch>

Parameter

<switch> Fail Stop On/Off
1 On
0 Off

Example of Use

To query the Fail Stop setting.
SPUR:FSTop?
> 1
[:SENSe]:SPURious:SEGment:NUMBer <integer>
Edit Segment Number

Function
This command sets the number of the segment to set a parameter in.

Command
[:SENSe]:SPURious:SEGment:NUMBer <integer>

Parameter
<integer> Segment number
  Range 1 to 20
  Resolution 1

Example of Use
To set 3 for the segment to set a parameter in.
SPUR:SEG:NMB 3

[:SENSe]:SPURious:SEGment:NUMBer?
Edit Segment Number Query

Function
This command queries the segment in which a parameter is set.

Query
[:SENSe]:SPURious:SEGment:NUMBer?

Parameter
<integer> Segment number
  Range 1 to 20
  Resolution 1

Example of Use
To query the segment in which a parameter is set.
SPUR:SEG:NMB?
> 3
2.14 Spurious Emission Measurement Function

[:SENSe]:SPURious[:RANGe][:LIST]:SEGMent:STATe

ON|OFF|1|0,ON|OFF|1|0,ON|OFF|1|0,ON|OFF|1|0,ON|OFF|1|0,ON|OFF|1|0,ON|OFF|1|0,ON|OFF|1|0,ON|OFF|1|0,ON|OFF|1|0,ON|OFF|1|0,ON|OFF|1|0,ON|OFF|1|0,ON|OFF|1|0,ON|OFF|1|0,ON|OFF|1|0,ON|OFF|1|0,ON|OFF|1|0,ON|OFF|1|0,ON|OFF|1|0,ON|OFF|1|0,ON|OFF|1|0,ON|OFF|1|0,ON|OFF|1|0,ON|OFF|1|0,ON|OFF|1|0

Segment On/Off

Function

This command sets the segment to On/Off.

Command

[:SENSe]:SPURious[:RANGe][:LIST]:SEGMent:STATe <switch_n>

Parameter

<switch_n> Segment n On/Off
ON|1 Segment is set to On.
OFF|0 Segment is set to Off.

Default

[MS269xA]
Segment 1 to 8 On
Segment 9 to 15 On (Off for MS2690A)
Segment 16 to 20 Off

[MS2830A]
Segment 1 to 6 On
Segment 7 to 8 On (Off for Option 040)
Segment 9 to 15 On (Off for Option 040/041)
Segment 16 to 18 On (Off for Option 040/041/043)
Segment 19 to 20 On (Off for Option 040/041/043/044)

[MS2840A]
Segment 1 to 6 On
Segment 7 to 8 On (Off for Option 040)
Segment 9 to 18 On (Off for Option 040/041)
Segment 19 to 20 On (Off for Option 040/041/044)

[MS2850A]
Segment 1 to 18 On
Segment 19 to 20 On (Off for Option 047)

Details

This command cannot set all the segments to Off at the same time.

Example of Use

To set the segment to On/Off.

SPUR:SEGM:STAT
ON, ON, OFF, ON, ON, OFF, ON, ON, OFF, ON, ON, OFF, ON, ON, OFF, ON, OFF, ON, ON, OFF, ON, OFF, ON, ON, OFF, ON, OFF, ON, ON
Chapter 2  SCPI Device Message Details

[:SENSe]:SPURious[:RANGe][:LIST]:SEGment:STATe?
Segment On/Off Query

Function
This command queries the On/Off state of the segment.

Query
[:SENSe]:SPURious[:RANGe][:LIST]:SEGment:STATe?

Response
<switch_n>

Parameter
<switch_n>  Segment n On/Off
1             On
0             Off

Example of Use
To query the On/Off state of the segment.

SPUR:SEG:M?STAT?
> 1,1,0,1,1,0,1,1,0,1,1,0,1,1,0,1,1,0,1,1
2.14 Spurious Emission Measurement Function

[:SENSe]:SPURious[:RANGe][:LIST]:FREQuency:STARt

<freq_1>,<freq_2>,<freq_3>,<freq_4>,<freq_5>,<freq_6>,<freq_7>,<freq_8>,
<freq_9>,<freq_10>,<freq_11>,<freq_12>,<freq_13>,<freq_14>,<freq_15>,<freq_16>,<freq_17>,<freq_18>,<freq_19>,<freq_20>

Spurious Emission Start Frequency

Function

This command sets the start frequency of each segment.

Command

[:SENSe]:SPURious[:RANGe][:LIST]:FREQuency:STARt <freq_n>

Parameter

<freq_n>  Start frequency of segment n

Range

[MS269xA]  
-100 MHz to 6.0499997 GHz (MS2690A)
-100 MHz to 13.5999997 GHz (MS2691A)
-100 MHz to 26.5999997 GHz (MS2692A)

[MS2830A]  
-100 MHz to 3.6999997 GHz (Option 040)
-100 MHz to 6.0999997 GHz (Option 041)
-100 MHz to 13.5999997 GHz (Option 043)
-100 MHz to 26.5999997 GHz (Option 044)
-100 MHz to 43.0999997 GHz (Option 045)

[MS2840A]  
-100 MHz to 3.6999997 GHz (Option 040)
-100 MHz to 6.0999997 GHz (Option 041)
-100 MHz to 26.9999997 GHz (Option 044)
-100 MHz to 44.9999997 GHz (Option 046)

[MS2850A]  
-100 MHz to 32.4999997 GHz (Option 047)
-100 MHz to 44.9999997 GHz (Option 046)

Resolution 1 Hz

Suffix Code HZ,KHZ,KZ,MHZ,MZ,GHZ,GZ
Hz is used when omitted.

Default

[MS269xA]
Segment 1  9 kHz
Segment 2  150 kHz
Segment 3  30 MHz
Segment 4  1 GHz
Segment 5  2 GHz
Segment 6  3 GHz
Segment 7  4 GHz
Segment 8  5 GHz
Chapter 2  SCPI Device Message Details

Segment 9  6 GHz
Segment 10  7 GHz (1 GHz for MS2690A)
Segment 11  8 GHz (1 GHz for MS2690A)
Segment 12  9 GHz (1 GHz for MS2690A)
Segment 13  10 GHz (1 GHz for MS2690A)
Segment 14  11 GHz (1 GHz for MS2690A)
Segment 15  12 GHz (1 GHz for MS2690A)
Segment 16 to 20  1 GHz

[MS2830A]
Segment 1  9 kHz
Segment 2  150 kHz
Segment 3  30 MHz
Segment 4  1 GHz
Segment 5  2 GHz
Segment 6  3 GHz
Segment 7  4 GHz (1 GHz for Option 040)
Segment 8  5 GHz (1 GHz for Option 040)
Segment 9  6 GHz (1 GHz for Option 040/041)
Segment 10  7 GHz (1 GHz for Option 040/041)
Segment 11  8 GHz (1 GHz for Option 040/041)
Segment 12  9 GHz (1 GHz for Option 040/041)
Segment 13  10 GHz (1 GHz for Option 040/041)
Segment 14  11 GHz (1 GHz for Option 040/041)
Segment 15  12 GHz (1 GHz for Option 040/041)
Segment 16  14 GHz (1 GHz for Option 040/041/043)
Segment 17  18 GHz (1 GHz for Option 040/041/043)
Segment 18  24 GHz (1 GHz for Option 040/041/043)
Segment 19  32 GHz (1 GHz for Option 040/041/043/044)
Segment 20  42 GHz (1 GHz for Option 040/041/043/044)

[MS2840A]
Segment 1  9 kHz
Segment 2  150 kHz
Segment 3  30 MHz
Segment 4  1 GHz
Segment 5  2 GHz
Segment 6  3 GHz
Segment 7  4 GHz (1 GHz for Option 040)
Segment 8  5 GHz (1 GHz for Option 040)
Segment 9  6 GHz (1 GHz for Option 040/041)
Segment 10  7 GHz (1 GHz for Option 040/041)
Segment 11  8 GHz (1 GHz for Option 040/041)
Segment 12  9 GHz (1 GHz for Option 040/041)
Segment 13  10 GHz (1 GHz for Option 040/041)
Segment 14  11 GHz (1 GHz for Option 040/041)
2.14 Spurious Emission Measurement Function

Segment 15 12 GHz (1 GHz for Option 040/041)
Segment 16 14 GHz (1 GHz for Option 040/041)
Segment 17 18 GHz (1 GHz for Option 040/041)
Segment 18 24 GHz (1 GHz for Option 040/041)
Segment 19 32 GHz (1 GHz for Option 040/041/044)
Segment 20 42 GHz (1 GHz for Option 040/041/044)

[MS2850A]
Segment 1 9 kHz
Segment 2 150 kHz
Segment 3 30 MHz
Segment 4 1 GHz
Segment 5 2 GHz
Segment 6 3 GHz
Segment 7 4 GHz
Segment 8 5 GHz
Segment 9 6 GHz
Segment 10 7 GHz
Segment 11 8 GHz
Segment 12 9 GHz
Segment 13 10 GHz
Segment 14 11 GHz
Segment 15 12 GHz
Segment 16 14 GHz
Segment 17 18 GHz
Segment 18 24 GHz
Segment 19 32 GHz (1 GHz for Option 047)
Segment 20 42 GHz (1 GHz for Option 047)

Example of Use

To set the start frequency of each segment.
SPUR:FREQ:STAR
9KHZ,100kHz,40MHz,1.1GHz,1GHz,1GHz,1GHz,1GHz,1GHz,1GHz,1GHz,1GHz,1GHz,1GHz,1GHz,1GHz,1GHz,1GHz,1GHz
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[:SENSe]:SPURious[:RANGe][:LIST]:FREQuency:STARt?
Spurious Emission Start Frequency Query

Function
This command queries the start frequency of each segment.

Query
[:SENSe]:SPURious[:RANGe][:LIST]:FREQuency:STARt?

Response
<freq_n>

Parameter
<freq_n>  Start frequency of segment n
[MS269xA]  
- 100 MHz to 6.0499997 GHz (MS2690A)
- 100 MHz to 13.5999997 GHz (MS2691A)
- 100 MHz to 26.5999997 GHz (MS2692A)

[MS2830A]  
- 100 MHz to 3.6999997 GHz (Option 040)
- 100 MHz to 6.0999997 GHz (Option 041)
- 100 MHz to 13.5999997 GHz (Option 043)
- 100 MHz to 26.5999997 GHz (Option 044)
- 100 MHz to 43.0999997 GHz (Option 045)

[MS2840A]  
- 100 MHz to 3.6999997 GHz (Option 040)
- 100 MHz to 6.0999997 GHz (Option 041)
- 100 MHz to 26.9999997 GHz (Option 044)
- 100 MHz to 44.9999997 GHz (Option 046)

[MS2850A]  
- 100 MHz to 32.4999997 GHz (Option 047)
- 100 MHz to 44.9999997 GHz (Option 046)

Resolution 1 Hz
Suffix code None. Value is returned in Hz units.

Example of Use
To query the start frequency of each segment.
SPUR:FREQ:STAR?
>
9000,100000,40000000,1100000000,1000000000,1000000000,1000000000,1000000000,1000000000,1000000000,1000000000,1000000000
2.14 Spurious Emission Measurement Function

[:SENSe]:SPURious[:RANGe][:LIST]:FREQuency:STOP

<freq_1>,<freq_2>,<freq_3>,<freq_4>,<freq_5>,<freq_6>,<freq_7>,<freq_8>,
<freq_9>,<freq_10>,<freq_11>,<freq_12>,<freq_13>,<freq_14>,<freq_15>,<freq_16>,
<freq_17>,<freq_18>,<freq_19>,<freq_20>

Spurious Emission Stop Frequency

Function

This command sets the stop frequency of each segment.

Command

[:SENSe]:SPURious[:RANGe][:LIST]:FREQuency:STOP <freq_n>

Parameter

<freq_n>  Stop frequency of Segment n

[MS269xA]
- 99.9997 MHz to 6.05 GHz (MS2690A)
- 99.9997 MHz to 13.6 GHz (MS2691A)
- 99.9997 MHz to 26.6 GHz (MS2692A)

[MS2830A]
- 99.9997 MHz to 3.7 GHz (Option 040)
- 99.9997 MHz to 6.1 GHz (Option 041)
- 99.9997 MHz to 13.6 GHz (Option 043)
- 99.9997 MHz to 26.6 GHz (Option 044)
- 99.9997 MHz to 43.1 GHz (Option 045)

[MS2840A]
- 99.9997 MHz to 3.7 GHz (Option 040)
- 99.9997 MHz to 6.1 GHz (Option 041)
- 99.9997 MHz to 27 GHz (Option 044)
- 99.9997 MHz to 45 GHz (Option 046)

[MS2850A]
- 99.9997 MHz to 32.5 GHz (Option 047)
- 99.9997 MHz to 45 GHz (Option 046)

Resolution 1 Hz

Suffix Code HZ, KHZ, KZ, MHZ, MZ, GHZ, GZ
Hz is used when omitted.

Default [MS269xA]
Segment 1 150 kHz
Segment 2 30 MHz
Segment 3 1 GHz
Segment 4 2 GHz
Segment 5 3 GHz
Segment 6 4 GHz
Segment 7 5 GHz
Segment 8 6 GHz
Segment 9 7 GHz (6 GHz for MS2690A)
Segment 10 8 GHz (6 GHz for MS2690A)
Segment 11 9 GHz (6 GHz for MS2690A)
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Segment 12  10 GHz (6 GHz for MS2690A)
Segment 13  11 GHz (6 GHz for MS2690A)
Segment 14  12 GHz (6 GHz for MS2690A)
Segment 15 to 20  12.75 GHz (6 GHz for MS2690A)

[MS2830A]
Segment 1  150 kHz
Segment 2  30 MHz
Segment 3  1 GHz
Segment 4  2 GHz
Segment 5  3 GHz
Segment 6  4 GHz (3.6 GHz for Option 040)
Segment 7  5 GHz (3.6 GHz for Option 040)
Segment 8  6 GHz (3.6 GHz for Option 040)
Segment 9  7 GHz
  (3.6 GHz for Option 040 and 6 GHz for Option 041)
Segment 10  8 GHz
  (3.6 GHz for Option 040 and 6 GHz for Option 041)
Segment 11  9 GHz
  (3.6 GHz for Option 040 and 6 GHz for Option 041)
Segment 12  10 GHz
  (3.6 GHz for Option 040 and 6 GHz for Option 041)
Segment 13  11 GHz
  (3.6 GHz for Option 040 and 6 GHz for Option 041)
Segment 14  14 GHz
  (3.6 GHz for Option 040, 6 GHz for Option 041, and
  12.75 GHz for Option 043)
Segment 16  18 GHz
  (3.6 GHz for Option 040, 6 GHz for Option 041, and
  12.75 GHz for Option 043)
Segment 17  24 GHz
  (3.6 GHz for Option 040, 6 GHz for Option 041, and
  12.75 GHz for Option 043)
Segment 18  32 GHz
  (3.6 GHz for Option 040, 6 GHz for Option 041, 12.75 GHz for Option 043, and 26.5 GHz for Option 044)
Segment 19  42 GHz
  (3.6 GHz for Option 040, 6 GHz for Option 041, 12.75 GHz for Option 043, and 26.5 GHz for Option 044)
Segment 20  43 GHz
  (3.6 GHz for Option 040, 6 GHz for Option 041, 12.75 GHz for Option 043, and 26.5 GHz for Option 044)
### 2.14 Spurious Emission Measurement Function

**[MS2840A]**
- Segment 1: 150 kHz
- Segment 2: 30 MHz
- Segment 3: 1 GHz
- Segment 4: 2 GHz
- Segment 5: 3 GHz
- Segment 6: 4 GHz (3.6 GHz for Option 040)
- Segment 7: 5 GHz (3.6 GHz for Option 040)
- Segment 8: 6 GHz (3.6 GHz for Option 040)
- Segment 9: 7 GHz (3.6 GHz for Option 040 and 6 GHz for Option 041)
- Segment 10: 8 GHz (3.6 GHz for Option 040 and 6 GHz for Option 041)
- Segment 11: 9 GHz (3.6 GHz for Option 040 and 6 GHz for Option 041)
- Segment 12: 10 GHz (3.6 GHz for Option 040 and 6 GHz for Option 041)
- Segment 13: 11 GHz (3.6 GHz for Option 040 and 6 GHz for Option 041)
- Segment 14: 14 GHz (3.6 GHz for Option 040 and 6 GHz for Option 041)
- Segment 15: 18 GHz (3.6 GHz for Option 040 and 6 GHz for Option 041)
- Segment 16: 24 GHz (3.6 GHz for Option 040 and 6 GHz for Option 041)
- Segment 17: 32 GHz (3.6 GHz for Option 040 and 6 GHz for Option 041, and 26.5 GHz for Option 044)
- Segment 18: 42 GHz (3.6 GHz for Option 040, 6 GHz for Option 041, and 26.5 GHz for Option 044)
- Segment 19: 44.5 GHz (3.6 GHz for Option 040, 6 GHz for Option 041, and 26.5 GHz for Option 044)

**[MS2850A]**
- Segment 1: 150 kHz
- Segment 2: 30 MHz
- Segment 3: 1 GHz
- Segment 4: 2 GHz
- Segment 5: 3 GHz
- Segment 6: 4 GHz
- Segment 7: 5 GHz
- Segment 8: 6 GHz
- Segment 9: 7 GHz
### Segment Details

<table>
<thead>
<tr>
<th>Segment</th>
<th>Frequency</th>
</tr>
</thead>
<tbody>
<tr>
<td>10</td>
<td>8 GHz</td>
</tr>
<tr>
<td>11</td>
<td>9 GHz</td>
</tr>
<tr>
<td>12</td>
<td>10 GHz</td>
</tr>
<tr>
<td>13</td>
<td>11 GHz</td>
</tr>
<tr>
<td>14</td>
<td>14 GHz</td>
</tr>
<tr>
<td>16</td>
<td>18 GHz</td>
</tr>
<tr>
<td>17</td>
<td>24 GHz</td>
</tr>
<tr>
<td>18</td>
<td>32 GHz</td>
</tr>
<tr>
<td>19</td>
<td>42 GHz (32 GHz for Option 047)</td>
</tr>
<tr>
<td>20</td>
<td>43 GHz (32 GHz for Option 047)</td>
</tr>
</tbody>
</table>

### Example of Use

To set the stop frequency of each segment.

```
SPUR:FREQ:STOP
150kHz,40MHz,1.1GHz,12.5GHz,12.5GHz,12.5GHz,12.5GHz,12.5GHz,12.5GHz,12.5GHz,12.5GHz,12.5GHz,12.5GHz,12.5GHz,12.5GHz,12.5GHz,12.5GHz,12.5GHz
```
2.14 Spurious Emission Measurement Function

[:SENSe]:SPURious[:RANGe][:LIST]:FREQuency:STOP?
Spurious Emission Stop Frequency Query
Function
This command queries the stop frequency of each segment.

2

Query

Response
<freq_n>
Parameter
<freq_n>

[MS269xA]

[MS2830A]

[MS2840A]

[MS2850A]
Resolution
Suffix code

Stop frequency of Segment n
–99.9997 MHz to 6.05 GHz (MS2690A)
–99.9997 MHz to 13.6 GHz (MS2691A)
–99.9997 MHz to 26.6 GHz (MS2692A)
–99.9997 MHz to 3.7 GHz (Option 040)
–99.9997 MHz to 6.1 GHz (Option 041)
–99.9997 MHz to 13.6 GHz (Option 043)
–99.9997 MHz to 26.6 GHz (Option 044)
–99.9997 MHz to 43.1 GHz (Option 045)
–99.9997 MHz to 3.7 GHz (Option 040)
–99.9997 MHz to 6.1 GHz (Option 041)
–99.9997 MHz to 27 GHz (Option 044)
–99.9997 MHz to 45 GHz (Option 046)
–99.9997 MHz to 32.5 GHz (Option 047)
–99.9997 MHz to 45 GHz (Option 046)
1 Hz
None. Value is returned in Hz units.

Example of Use
To query the stop frequency of each segment.
SPUR:FREQ:STOP?
>100000,40000000,1100000000,1000000000,1000000000,100000
0000,1000000000,1000000000,1000000000,1000000000,1000000
000,1000000000,1000000000,1000000000,1000000000,10000000
00,1000000000,1000000000,1000000000,1000000000

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[:SENSe]:SPURious[:RANGe][:LIST]:FREQuency:STOP? <freq_n>


Function

This command sets the reference level of each segment.

Command

:DISPlay:SPURious:VIEW[1]:WINDow[1]:TRACe:Y[:SCALe]:RLEV
el <real_n>

Parameter

<real_n> Reference level of Segment n
Range Value equivalent to –120 to +50 dBm
Resolution 0.01 dB
Suffix Code DBM, DM
dBm is used when omitted.
Default 0 dBm

Example of Use

To set the reference level of each segment.
0DBM,0,0,3,0,0,0,8,0,0,0,0,0,0,0,0,0,0,0,0
**2.14 Spurious Emission Measurement Function**

```
:DISPlay:SPURious:VIEW[1]:WINDow[1]:TRACe:Y[:SCALe]:RLEVel?
```

Spurious Emission Reference Level Query

**Function**

This command queries the reference level of each segment.

**Query**

```
:DISPlay:SPURious:VIEW[1]:WINDow[1]:TRACe:Y[:SCALe]:RLEVel?
```

**Response**

```
<real_n>
```

**Parameter**

```
<real_n> Reference level of Segment n
Range Value equivalent to –120 to +50 dBm
Resolution 0.01 dB
Suffix Code None. Value is returned in dBm units.
```

**Example of Use**

To query the reference level of each segment.

```
```

```
> 0.00,0.00,0.00,3.00,0.00,0.00,0.00,8.00,0.00,0.00,0.00,0.00,0.00,8.00,0.00,0.00,0.00,0.00,0.00,0.00,0.00
```
[:SENSe]:SPURious:ATTenuation
<rel_ampl_1>|AUTO,<rel_ampl_2>|AUTO,<rel_ampl_3>|AUTO,<rel_ampl_4>|AUTO,<rel_ampl_5>|AUTO,<rel_ampl_6>|AUTO,<rel_ampl_7>|AUTO,<rel_ampl_8>|AUTO,<rel_ampl_9>|AUTO,<rel_ampl_10>|AUTO,<rel_ampl_11>|AUTO,<rel_ampl_12>|AUTO,<rel_ampl_13>|AUTO,<rel_ampl_14>|AUTO,<rel_ampl_15>|AUTO,<rel_ampl_16>|AUTO,<rel_ampl_17>|AUTO,<rel_ampl_18>|AUTO,<rel_ampl_19>|AUTO,<rel_ampl_20>|AUTO

Spurious Emission Attenuator

Function
This command sets the attenuator value of each segment.

Command
[:SENSe]:SPURious:ATTenuation <rel_ampl_n>|AUTO

Parameter
<rel_ampl_n> Attenuator of Segment n
Range 0 to 60 dB
Resolution
[MS269xA], [MS2850A] 2 dB
[MS2830A], [MS2840A] 2 dB or 10 dB
Refer to “Table 2.4.2-3 Resolution of Input Attenuator” in the MS2830A/MS2840A/MS2850A Signal Analyzer Operation Manual (Spectrum Analyzer Function Operation).
Suffix Code DB, dB is used even when omitted.
AUTO Attenuator value is automatically set (Default).

Example of Use
To set the attenuator value.
SPUR:ATT
10DB, 10DB, 12DB, AUTO, AUTO, AUTO, AUTO, AUTO, AUTO, AUTO, AUTO, AUTO, AUTO, AUTO, AUTO, AUTO, AUTO, AUTO, AUTO, AUTO, AUTO, AUTO
2.14 Spurious Emission Measurement Function

[:SENSe]:SPURious:ATTenuation?
Spurious Emission Attenuator Query

Function
This command queries the attenuator value of each segment.

Query
[:SENSe]:SPURious:ATTenuation?

Response
<rel_ampl_n>

Parameter
<rel_ampl_n> Attenuator value of Segment n
Range 0 to 60 dB
Resolution
[MS269xA], [MS2850A]
2 dB
[MS2830A], [MS2840A]
2 dB or 10 dB
Refer to “Table 2.4.2-3 Resolution of Input Attenuator” in the
MS2830A/MS2840A/MS2850A Signal Analyzer Operation Manual (Spectrum Analyzer Function Operation).
Suffix code None. Value is returned in dB units.

Example of Use
To query the attenuator value.
SPUR:ATT?
>
10,10,12,10,10,10,10,10,10,10,10,10,10,10,10,10,10,10,10,10,10,10,10,10,10
[:SENSe]:SPURious[:RANGe][:LIST]:BANDwidth[:RESolution]:AUTO
ON|OFF|1|0,ON|OFF|1|0,ON|OFF|1|0,ON|OFF|1|0,ON|OFF|1|0,ON|OFF|1|0,ON|OFF|1|0,
ON|OFF|1|0,ON|OFF|1|0,ON|OFF|1|0,ON|OFF|1|0,ON|OFF|1|0,ON|OFF|1|0,
ON|OFF|1|0,ON|OFF|1|0,ON|OFF|1|0,ON|OFF|1|0,ON|OFF|1|0,ON|OFF|1|0,
ON|OFF|1|0,ON|OFF|1|0,ON|OFF|1|0,ON|OFF|1|0,ON|OFF|1|0,ON|OFF|1|0
Spurious Emission Resolution Bandwidth Auto/Manual

Function
This command sets RBW of each segment to Auto/Manual.

Command
[:SENSe]:SPURious[:RANGe][:LIST]:BANDwidth[:RESolution]:AUTO <switch_n>

Parameter
<switch_n> RBW in segment n Auto/Manual
ON|1 RBW is set to AUTO.
OFF|0 RBW is set to Manual.

Default
[MS269xA]
Segment 1 to 8 Manual
Segment 9 to 15 Manual (Auto for MS2690A)
Segment 16 to 20 Auto

[MS2830A]
Segment 1 to 6 Manual
Segment 7 to 8 Manual (Auto for Option 040)
Segment 9 to 15 Manual (Auto for Option 040/041)
Segment 16 to 18 Manual (Auto for Option 040/041/043)
Segment 19 to 20 Manual (Auto for Option 040/041/043/044)

[MS2840A]
Segment 1 to 6 Manual
Segment 7 to 8 Manual (Auto for Option 040)
Segment 9 to 18 Manual (Auto for Option 040/041)
Segment 19 to 20 Manual (Auto for Option 040/041/044)

[MS2850A]
Segment 1 to 18 Manual
Segment 19 to 20 Manual (Auto for Option 047)

Example of Use
To set RBW to Auto/Manual.
SPUR:BAND: AUTO
ON, ON, ON, ON, ON, OFF, OFF, OFF, ON, ON, ON, ON, OFF, OFF, ON, ON

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[:SENSe]:SPURious[:RANGe][:LIST]:BANDwidth[:RESolution]:AUTO?

Spurious Emission Resolution Bandwidth Auto/Manual Query

Function

This command queries the Auto/Manual state of RBW in each segment.

Query

[:SENSe]:SPURious[:RANGe][:LIST]:BANDwidth[:RESolution]:AUTO?

Response

<switch_n>

Parameter

<switch_n>    RBW in segment n Auto/Manual
1              Auto
0              Manual

Example of Use

To query the Auto/Manual state of RBW.
SPUR:BAND:AUTO?
> 1,1,1,1,1,1,0,0,1,1,1,1,1,1,0,0,1,1
Chapter 2  SCPI Device Message Details

[:SENSe]:SPURious[:RANGe][:LIST]:BANDwidth[:RESolution]
<bandwidth_1>,<bandwidth_2>,<bandwidth_3>,<bandwidth_4>,<bandwidth_5>,<bandwidth_6>,<bandwidth_7>,<bandwidth_8>,<bandwidth_9>,<bandwidth_10>,<bandwidth_11>,<bandwidth_12>,<bandwidth_13>,<bandwidth_14>,<bandwidth_15>,<bandwidth_16>,<bandwidth_17>,<bandwidth_18>,<bandwidth_19>,<bandwidth_20>

Spurious Emission Resolution Bandwidth

Function
This command sets the resolution bandwidth (RBW) of each segment.

Command
[:SENSe]:SPURious[:RANGe][:LIST]:BANDwidth[:RESolution]
<bandwidth_n>

Parameter
<bandwidth_n>  Resolution bandwidth (RBW) of Segment n

[MS269xA]
Range/Resolution  Set to any of 30 Hz to 3 MHz (1-3 sequence), 50 kHz, 5 MHz, 10 MHz, and 20 MHz.

[MS2830A], [MS2840A]
Range/Resolution  Set to any of 30 Hz to 3 MHz (1-3 sequence), 500 Hz, 50 kHz, 2 MHz, 5 MHz, 10 MHz, and 20 MHz.

[MS2850A]
Range/Resolution  Set to any of 30 Hz to 3 MHz (1-3 sequence), 500 Hz, 50 kHz, 2 MHz, 5 MHz, and 10 MHz.

[Common]
Suffix Code  HZ,KHZ,KZ,MHZ,MZ,GHZ,GZ
Hz is used when omitted.

Default
[MS269xA]
Segment 1  1 kHz
Segment 2  10 kHz
Segment 3  100 kHz
Segment 4 to 8  1 MHz
Segment 9 to 15  1 MHz (Auto for MS2690A)
Segment 16 to 20  Auto value

[MS2830A], [MS2840A]
Segment 1  1 kHz
Segment 2  10 kHz
Segment 3  100 kHz
Segment 4 to 6  1 MHz
### Spurious Emission Measurement Function

**[MS2830A]**
- Segment 7 to 8: 1 MHz (Auto for Option 040)
- Segment 9 to 15: 1 MHz (Auto for Option 040/041)
- Segment 16 to 18: 1 MHz (Auto for Option 040/041/043)
- Segment 19 to 20: 1 MHz (Auto for Option 040/041/043/044)

**[MS2840A]**
- Segment 7 to 8: 1 MHz (Auto for Option 040)
- Segment 9 to 18: 1 MHz (Auto for Option 040/041)
- Segment 19 to 20: 1 MHz (Auto for Option 040/041/044)

**[MS2850A]**
- Segment 7 to 18: 1 MHz
- Segment 19 to 20: 1 MHz (Auto for Option 047)

**Details**

For MS2830A, MS2840A, RBW 20 MHz or greater is only available for MS2830A-005/105/007/009/109, MS2840A-005/105/009/109.

**Example of Use**

To set the resolution bandwidth (RBW) of each segment.
```
SPUR:BAND
3KHZ,3KHZ,10KHZ,10KHZ,10KHZ,10KHZ,10KHZ,10KHZ,10KHZ,10KHZ,10KHZ,10KHZ,10KHZ,10KHZ,10KHZ,10KHZ
```
[:SENSe]:SPURious[:RANGe][:LIST]:BANDwidth[:RESolution]?  
Spurious Emission Resolution Bandwidth Query

Function
This command queries the resolution bandwidth (RBW) of each segment.

Query
[:SENSe]:SPURious[:RANGe][:LIST]:BANDwidth[:RESolution]?

Response
<bandwidth_n>

Parameter
<bandwidth_n> Resolution bandwidth (RBW) of Segment n

[MS269xA]
Range/Resolution Value is returned in any of 30 Hz to 3 MHz (1-3 sequence), 50 kHz, 5 MHz, 10 MHz, and 20 MHz.

[MS2830A], [MS2840A]
Range/Resolution Value is returned in any of 30 Hz to 3 MHz (1-3 sequence), 500 Hz, 50 kHz, 2 MHz, 5 MHz, 10 MHz, and 20 MHz.

[MS2850A]
Range/Resolution Set to any of 30 Hz to 3 MHz (1-3 sequence), 500 Hz, 50 kHz, 2 MHz, 5 MHz, and 10 MHz.

[Common]
Suffix code None. Value is returned in Hz units.

Details
For MS2830A, MS2840A, RBW 20 MHz or greater is only available for MS2830A-005/105/007/009/109, MS2840A-005/105/009/109.

Example of Use
To set the resolution bandwidth (RBW) of each segment.
SPUR:BAND?
>
3000,3000,10000,10000,10000,10000,10000,10000,10000,10000,10000,10000,
Spurious Emission Measurement Function

This command sets the video bandwidth (VBW) of each segment to Auto/Manual.

Command

[:SENSe]:SPURious[:RANGe][:LIST]:BANDwidth:VIDeo:AUTO

Parameter

<switch_n>          Auto mode of VBW in segment n On/Off

ON|1                   Sets Auto mode to On.
OFF|0                   Sets Auto mode to Off.

Example of Use

To set the resolution bandwidth of the offset to Auto.
SPUR:BAND:VID:AUTO
ON, ON, ON, ON, ON, OFF, OFF, ON, ON, ON, ON, ON, OFF, OFF, ON, ON, ON
[:SENSe]:SPURious[:RANGe][:LIST]:BANDwidth:VIDeo:AUTO?
Spurious Emission Video Bandwidth Auto/Manual Query

Function

This command queries the Auto/Manual state of the video bandwidth (RBW) in each segment.

Query

[:SENSe]:SPURious[:RANGe][:LIST]:BANDwidth:VIDeo:AUTO?

Parameter

<switch_n>  Auto mode On/Off
1          On
0          Off

Example of Use

To query VBW of each segment.
SPUR:BAND:VID:AUTO?
> 1,1,1,1,1,0,0,1,1,1,0,1,1,1,1
2.14 Spurious Emission Measurement Function

[:SENSe]:SPURious[:RANGE][:LIST]:BANDwidth:VIDeo
<bandwidth_1>|OFF,<bandwidth_2>|OFF,<bandwidth_3>|OFF,<bandwidth_4>|OFF,<bandwidth_5>|OFF,<bandwidth_6>|OFF,<bandwidth_7>|OFF,<bandwidth_8>|OFF,<bandwidth_9>|OFF,<bandwidth_10>|OFF,<bandwidth_11>|OFF,<bandwidth_12>|OFF,<bandwidth_13>|OFF,<bandwidth_14>|OFF,<bandwidth_15>|OFF,<bandwidth_16>|OFF,<bandwidth_17>|OFF,<bandwidth_18>|OFF,<bandwidth_19>|OFF,<bandwidth_20>|OFF

Spurious Emission Video Bandwidth

Function

This command sets the video bandwidth (RBW) of each segment.

Command

[:SENSe]:SPURious[:RANGE][:LIST]:BANDwidth:VIDeo
<bandwidth_n>|OFF

Parameter

<bandwidth_n>  Video bandwidth of Segment n (VBW)
Range/Resolution  1 Hz to 10 MHz (1-3 sequence), 5 kHz
Suffix Code  HZ,KHZ,KZ,MHZ,MZ,GHZ,GZ
Hz is used when omitted.
OFF  VBW is set to Off.

Details

The setting range of this function is limited depending on the setting of RBW. For details, refer to MS2690A/MS2691A/MS2692A Signal Analyzer Operation Manual (Spectrum Analyzer Function Operation) or MS2830A/MS2840A/MS2850A Signal Analyzer Operation Manual (Spectrum Analyzer Function Operation).

Example of Use

To set the video bandwidth of each segment.

SPUR:BAND:VID
3KHZ,3KHZ,1MHZ,1MHZ,1MHZ,1MHZ,1MHZ,1MHZ,1MHZ,1MHZ,1MHZ,1MHZ,1MHZ,1MHZ,1MHZ,1MHZ,1MHZ,1MHZ,1MHZ,1MHZ
Chapter 2  SCPI Device Message Details

[:SENSe]:SPURious[:RANGe][:LIST]:BANDwidth:VIDeo?
Spurious Emission Video Bandwidth Query

Function

This command queries the video bandwidth (VBW) of each segment.

Query

[:SENSe]:SPURious[:RANGe][:LIST]:BANDwidth:VIDeo?

Response

<bandwidth_n>

Parameter

<bandwidth_n>  Video bandwidth (VBW) of Segment n
Range/Resolution  1 Hz to 10 MHz (1-3 sequence), 5 kHz
Suffix Code  None. Hz is used when omitted.
OFF  VBW is set to Off.

Example of Use

To query the video bandwidth of each segment.
SPUR:BAND:VID?
>
3000,3000,1000000,1000000,1000000,1000000,1000000,1000000
0,1000000,1000000,1000000,1000000,1000000,1000000,1000000
0,1000000,1000000,1000000,1000000,1000000
2.14 Spurious Emission Measurement Function

[:SENSe]:SPURious[:RANGe][:LIST]:SWEep:TIME:AUTO
ON|OFF|1|0,ON|OFF|1|0,ON|OFF|1|0,ON|OFF|1|0,ON|OFF|1|0,ON|OFF|1|0,
ON|OFF|1|0,ON|OFF|1|0,ON|OFF|1|0,ON|OFF|1|0,ON|OFF|1|0,ON|OFF|1|0,
ON|OFF|1|0,ON|OFF|1|0,ON|OFF|1|0,ON|OFF|1|0,ON|OFF|1|0,ON|OFF|1|0,
ON|OFF|1|0,ON|OFF|1|0,ON|OFF|1|0,ON|OFF|1|0,ON|OFF|1|0,ON|OFF|1|0

Spurious Emission Sweep Time Auto/Manual

Function
This command sets the sweep time of each segment to Auto/Manual.

Command
[:SENSe]:SPURious[:RANGe][:LIST]:SWEep:TIME:AUTO
<switch_n>

Parameter
<switch_n>  Sweep time of Segment n Auto/Manual
ON|1  Sweep Time is set to Auto.
OFF|0  Sweep Time is set to Manual.
Default  Auto value

Example of Use
To set the sweep time of each segment to Auto/Manual.
SPUR:SWE:TIME:AUTO
ON, ON, OFF, ON, ON, OFF, ON, OFF, ON, ON, OFF, ON, ON, OFF, ON, OFF, ON, ON, OFF, ON, ON
[:SENSe]:SPURious[:RANGE][:LIST]:SWEep:TIME:AUTO?

Spurious Emission Sweep Time Auto/Manual Query

Function

This command queries the Auto/Manual state of the sweep time in each segment.

Query

[:SENSe]:SPURious[:RANGE][:LIST]:SWEep:TIME:AUTO?

Response

<switch_n>

Parameter

<switch_n> Sweep time of Segment n Auto/Manual
1 Sweep Time is set to Auto.
0 Sweep Time is set to Manual.

Example of Use

To query the Auto/Manual state of the sweep time in each segment.

SPUR:SWE:TIME:AUTO?

> 1,1,0,1,1,0,1,1,0,1,1,0,1,1,0,1,1,0,1,1
2.14 Spurious Emission Measurement Function

[:SENSe]:SPURious[:RANGE][:LIST]:SWEep:TIME
<seconds_1>,<seconds_2>,<seconds_3>,<seconds_4>,<seconds_5>,<seconds_6>,<seconds_7>,<seconds_8>,<seconds_9>,<seconds_10>,<seconds_11>,<seconds_12>,<seconds_13>,<seconds_14>,<seconds_15>,<seconds_16>,<seconds_17>,<seconds_18>,<seconds_19>,<seconds_20>

Spurious Emission Sweep Time

Function

This command sets the sweep time of each segment.

Command

[:SENSe]:SPURious[:RANGE][:LIST]:SWEep:TIME <seconds_n>

Parameter

<seconds_n> Sweep Time of Segment n

Range

[MS269xA] 2 ms to 1000 s
[MS2830A] 1 ms to 1000 s
[MS2840A] 1 ms to 1000 s
[MS2850A] 1 ms to 1000 s

Suffix Code NS,US,MS,S

S is used when omitted.

Default Auto value

Example of Use

To set the sweep time of each segment.

SWE:TIME 0.1,0.1,0.1,0.1,0.1,0.1,0.1,0.1,0.1,0.1,0.1,0.1,0.1,0.1,0.1,0.1,0.1,0.1,0.1
[:SENSe]:SPURious[:RANGe][:LIST]:SWEep:TIME?
Spurious Emission Sweep Time Query

Function

This command queries the sweep time of each segment.

Query

[:SENSe]:SPURious[:RANGe][:LIST]:SWEep:TIME?

Response

<seconds_n>

Parameter

<seconds_n>

Range

[MS269xA]  2 ms to 1000 s
[MS2830A]  1 ms to 1000 s
[MS2840A]  1 ms to 1000 s
[MS2850A]  1 ms to 1000 s

Suffix code None. Value is returned in S units.

Example of Use

To query the sweep time of each segment.
SPUR:SWE:TIME?
>
0.100000,0.100000,0.100000,0.100000,0.100000,0.100000,0.100000,0.100000,0.100000,0.100000,0.100000,0.100000,0.100000,0.100000,0.100000,0.100000,0.100000,0.100000,0.100000,0.100000,0.100000,0.100000,0.100000
2.14 Spurious Emission Measurement Function

[:SENSe]:SPURious[:RANGE][:LIST]:SWEep:PAUSe
ON|OFF|1|0,ON|OFF|1|0,ON|OFF|1|0,ON|OFF|1|0,ON|OFF|1|0,ON|OFF|1|0,ON|OFF|1|0,ON|OFF|1|0,ON|OFF|1|0,ON|OFF|1|0,ON|OFF|1|0,ON|OFF|1|0,ON|OFF|1|0,ON|OFF|1|0,ON|OFF|1|0,ON|OFF|1|0,ON|OFF|1|0
ON|OFF|1|0,ON|OFF|1|0,ON|OFF|1|0,ON|OFF|1|0,ON|OFF|1|0,ON|OFF|1|0,ON|OFF|1|0,ON|OFF|1|0,ON|OFF|1|0,ON|OFF|1|0
ON|OFF|1|0,ON|OFF|1|0,ON|OFF|1|0,ON|OFF|1|0,ON|OFF|1|0,ON|OFF|1|0,ON|OFF|1|0,ON|OFF|1|0
Pause before Sweep

Function
This command configures the setting to pause before sweep of each segment.

Command
[:SENSe]:SPURious[:RANGE][:LIST]:SWEep:PAUSe <switch_n>

Parameter
<switch_n>  |  Pause before sweep On/Off
ON|1 | Pause before sweep.
OFF|0 | Not pause before sweep.
Default Off

Details
When it is set to On, the dialog box is displayed before measuring the segment, and the measurement pauses. The measurement does not pause during remote operation. Also, when it has switched to remote operation during pause, the measurement restarts.

Example of Use
To configure settings to pause before sweep of each segment.
SPUR:SWE:PAUS
ON, ON, ON, OFF, OFF, ON, ON, ON, OFF, OFF, ON, ON, ON, OFF, OFF, ON, ON, ON, OFF, OFF, ON, ON, ON
[:SENSe]:SPURious[:RANGe][:LIST]:SWEep:PAUSe?
Pause before Sweep Query

Function
This command queries the setting to pause before sweep of each segment.

Query
[:SENSe]:SPURious[:RANGe][:LIST]:SWEep:PAUSe?

Response
<switch_n>

Parameter
<switch_n>  Pause before sweep On/Off
  1  Pause before sweep.
  0  Not pause before sweep.

Example of Use
To query the setting to pause before sweep of each segment.
SPUR:SWE:PAUS?
> 1,1,1,0,0,1,1,1,0,0,1,1,1,0,0,1,1,1
Spurious Emission Measurement Function

[SENSe]:SPURious:POWer:[RF]:GAIN[:STATE]

ON|OFF|1|0, ON|OFF|1|0, ON|OFF|1|0, ON|OFF|1|0, ON|OFF|1|0,
ON|OFF|1|0, ON|OFF|1|0, ON|OFF|1|0, ON|OFF|1|0, ON|OFF|1|0,
ON|OFF|1|0, ON|OFF|1|0, ON|OFF|1|0, ON|OFF|1|0, ON|OFF|1|0,
ON|OFF|1|0, ON|OFF|1|0, ON|OFF|1|0, ON|OFF|1|0, ON|OFF|1|0,
ON|OFF|1|0, ON|OFF|1|0, ON|OFF|1|0, ON|OFF|1|0, ON|OFF|1|0

Spurious Emission Preamp On/Off

Function
This command sets the pre-amp of each segment to On/Off.

Command

[:SENSe]:SPURious:POWer[:RF]:GAIN[:STATE] <switch_n>

Parameter

<switch_n> Pre-amp On/Off
ON|1 Sets Pre-amp to On
OFF|0 Sets Pre-amp to Off
Default Off

Details

[MS269xA] When Option 008/108 6GHz Pre-amp is not installed, the pre-amp setting is fixed to Off.

[MS2830A] This command becomes unavailable when Option 008/108/068/168 Preamplifier is not installed.

[MS2840A] This command becomes unavailable when Option 008/108/068/168/069/169 Preamplifier is not installed.

[MS2850A] This command becomes unavailable when Option 068/168 Preamplifier is not installed.

Example of Use
To set the pre-amp of each segment.

SPUR:POW:GAIN
ON, ON, ON, OFF, OFF, ON, ON, ON, OFF, OFF, ON, ON, ON, OFF, OFF
, ON, ON, ON
Chapter 2  SCPI Device Message Details

[:SENSe]:SPURious:POWer[:RF]:GAIN[:STATe]?
Spurious Emission Preamp On/Off Query

Function
This command queries the On/Off state of the pre-amp in each segment.

Query
[:SENSe]:SPURious:POWer[:RF]:GAIN[:STATe]?

Response
<switch_n>

Parameter
<switch>  Pre-amp On/Off
1  On
0  Off

Example of Use
To query the On/Off state of the pre-amp in each segment.
SPUR:POW:GAIN?
> 1,1,1,0,0,1,1,1,1,0,0,1,1,1,1,0,0,1,1,1
2.14 Spurious Emission Measurement Function

This command selects the detection mode of the waveform pattern in each segment.

Command

[:SENSe]:SPURious[:RANGe][:LIST]:DETector[1][:FUNCTION]

Parameter

<mode_n>  Detection mode of Segment n

NORMal  Simultaneous detection of Positive and Negative peaks

POSitive  Positive peak detection

NEGative  Negative peak detection

SAMPle  Sample detection

RMS  RMS detection

Default  Positive.

Example of Use

To select the detection mode of the waveform pattern in each segment.

SPUR:DET

POS, POS, POS, NEG, NEG, NORM, NORM, RMS, SAMP, POS, POS, POS, POS, POS, POS, POS, POS, POS, POS, POS, POS, POS, POS
[SENSe]:SPURious[:RANGE][:LIST]:DETector[1][:FUNCtion]?

Spurious Emission Detection Mode Query

**Function**

This command queries the detection mode of the waveform pattern in each segment.

**Query**

[SENSe]:SPURious[:RANGE][:LIST]:DETector[1][:FUNCtion]?

**Response**

<mode_n>

**Parameter**

<table>
<thead>
<tr>
<th>&lt;mode_n&gt;</th>
<th>Detection mode of Segment n</th>
</tr>
</thead>
<tbody>
<tr>
<td>NORM</td>
<td>Simultaneous detection of Positive and Negative peaks</td>
</tr>
<tr>
<td>POS</td>
<td>Positive peak detection</td>
</tr>
<tr>
<td>NEG</td>
<td>Negative peak detection</td>
</tr>
<tr>
<td>SAMP</td>
<td>Sample detection</td>
</tr>
<tr>
<td>RMS</td>
<td>RMS detection</td>
</tr>
</tbody>
</table>

**Example of Use**

To query the detection mode of the waveform in each segment.

```
SPUR:DET?
>
POS,POS,POS,NEG,NEG,NORM,NORM,RMS,SAMP,POS,POS,POS,P
OS,POS,POS,POS,POS,POS
```
2.14 Spurious Emission Measurement Function

[:SENSe]:SPURious[:RANGe][:LIST]:SWEep:POINts
<integer_1>,<integer_2>,<integer_3>,<integer_4>,<integer_5>,<integer_6>,<
integer_7>,<integer_8>,<integer_9>,<integer_10>,<integer_11>,<integer_12
>,<integer_13>,<integer_14>,<integer_15>,<integer_16>,<integer_17>,<inte
ger_18>,<integer_19>,<integer_20>

Spurious Emission Trace Point

Function

This command sets the number of the points in the trace data of each segment.

Command

[:SENSe]:SPURious[:RANGe][:LIST]:SWEep:POINts <integer_n>

Parameter

<integer_n>  Number of points in trace data of Segment n

11          11 points
21          21 points
41          41 points
51          51 points
101         101 points
201         201 points
251         251 points
401         401 points
501         501 points
1001        1001 points
2001        2001 points
5001        5001 points
10001       10001 points
30001       30001 points

(MS269xA, MS2830A, MS2840A Only)

Default
Segment 1    1001
Segment 2    5001
Segment 3    10001
Segment 4    10001
Segment 5 to 20 10001
Example of Use

To set the number of the points in the trace data of each segment.

```plaintext
SPUR:SWE:POIN
1001,5001,5001,5001,10001,10001,10001,10001,10001,10001,
10001,10001,10001,10001,10001,10001,10001,10001,10001,10001
```

`:SENSe]:SPURious[:RANGe][:LIST]:SWEep:POINts?

Spurious Emission Trace Point Query

Function

This command queries the number of the points in the trace data of each segment.

Query

`:SENSe]:SPURious[:RANGe][:LIST]:SWEep:POINts?

Response

<integer_n>

Parameter

<integer_n> Number of points in trace data of Segment n

11 11 points
21 21 points
41 41 points
51 51 points
101 101 points
201 201 points
251 251 points
401 401 points
501 501 points
1001 1001 points
2001 2001 points
5001 5001 points
10001 10001 points
30001 30001 points

(MS269xA, MS2830A, MS2840A Only)

Example of Use

To query the number of the points in the trace data of each segment.

```
SPUR:SWE:POIN?
> 1001,5001,5001,5001,10001,10001,10001,10001,10001,10001,
   10001,10001,10001,10001,10001,10001,10001,10001,10001,10001
```
Couple Storage Count

This command sets the shared setting of the storage count in each segment to On/Off.

Command

`[:SENSe]:SPURious:AVERage:COUNt:COUPle <switch>`

Parameter

- `<switch>`: Shared setting On/Off
  - ON|1: Sets the Shared setting to On (Default).
  - OFF|0: Sets the Shared setting to Off.

Details

When set to On, the same as the storage count of the segment set in Displayed segment is set to those of all other segments.

Example of Use

To set the shared setting of the storage count in each segment to On.

`SPUR:AVER:COUN:COUP ON`
[:SENSe]:SPURious:AVERage:COUNt:COUPle?
Couple Storage Count Query

Function

This command queries the On/Off state of the shared setting of the storage count in each segment.

Query

[:SENSe]:SPURious:AVERage:COUNt:COUPle?

Response

<switch>

Parameter

<switch> Shared setting of Storage count On/Off
   1  On
   0  Off

Example of Use

To query the shared setting of the storage count in each segment.
SPUR:AVER:COUN:COUP?
> 1
2.14 Spurious Emission Measurement Function

[:SENSe]:SPURious[:RANGe][:LIST]:AVERage:COUNt
<integer_1>,<integer_2>,<integer_3>,<integer_4>,<integer_5>,<integer_6>,<integer_7>,<integer_8>,<integer_9>,<integer_10>,<integer_11>,<integer_12>,<integer_13>,<integer_14>,<integer_15>,<integer_16>,<integer_17>,<integer_18>,<integer_19>,<integer_20>

Spurious Emission Storage Count

Function

This command sets the storage count of each segment.

Command

[:SENSe]:SPURious[:RANGe][:LIST]:AVERage:COUNt
<integer_n>

Parameter

<integer_n> Storage count of Segment n
Range 1 to 9999
Resolution 1
Default 10 times

Example of Use

To set the storage count of each segment.
SPUR:AVER:COUN
10,10,10,20,20,5,5,5,5,5,5,5,10,10,10,10,10,10,10,10,10
[:SENSe]:SPURious[:RANGE][:LIST]:AVERage:COUNt?
Spurious Emission Storage Count Query

Function
This command queries the storage count of each segment.

Query
[:SENSe]:SPURious[:RANGE][:LIST]:AVERage:COUNt?

Response
<integer_n>

Parameter
<integer_n> Storage count of Segment n
  Range 1 to 9999
  Resolution 1

Example of Use
To query the storage count of each segment.
SPUR:AVE:COUN?
> 10,10,10,20,20,5,5,5,5,5,5,5,10,10,10,10,10,10,10,10

:CALCulate:SPURious[:RANGE][:LIST]:CORRection:COMMon <segment>
Use Common Correction Table

Function
This command configures settings to use the common correction data.

Command
:CALCulate:SPURious[:RANGE][:LIST]:CORRection:COMMon <segment>

Parameter
<segment> Segment number
  Range 1 to 20
  Resolution 1

Example of Use
To configure settings to use the common correction data in Segment 1.
CALC:SPUR:CORR:COMM 1
:CALCulate:SPURious[:RANGe][:LIST]:CORRection:RECall

<segment>,<filename>[,<device>]

Recall Correction Table

Function

This command selects the correction table to use in a segment.

Command

:CALCulate:SPURious[:RANGe][:LIST]:CORRection:RECall

<segment>,<filename>[,<device>]

Parameter

<segment>    Segment
  Range       1 to 20
  Resolution  1
<filename>   Name of File
  Character string within 32 characters enclosed by double quotation marks (""") or single quotation marks ('') (Not including an extension).
  The following characters are not available:
  \ / : * ? " " ' ' < > |
<device>     Name of Drive
  A,B,D,E,F,...
  D drive is used when omitted.

Example of Use

To select the correction table of a file named TEST in the internal HDD or SSD.

CALC:SPUR:CORR:REC 1,"TEST",D
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:CALCulate:SPURious[:RANGE][:LIST]:LIMit:ABSolute[:UPPer][:DATA][:STARt] <ampl_1>,<ampl_2>,<ampl_3>,<ampl_4>,<ampl_5>,<ampl_6>,<ampl_7>,<ampl_8>,<ampl_9>,<ampl_10>,<ampl_11>,<ampl_12>,<ampl_13>,<ampl_14>,<ampl_15>,<ampl_16>,<ampl_17>,<ampl_18>,<ampl_19>,<ampl_20>

Spurious Emission Limit Start Level

Function

This command sets the absolute level limit of the start frequency in each segment for the Spurious Emission measurement.

Command

:CALCulate:SPURious[:RANGE][:LIST]:LIMit:ABSolute[:UPPer]:DATA[:STARt] <ampl_n>

Parameter

<ampl_n> Absolute level limit of start Frequency of Segment n
Range –200 to 50 dBm
Resolution 0.01 dB
Suffix Code DBM,DM
Default –13 dBm

Example of Use

To set the absolute level limit of the start frequency in each segment.
CALC:SPUR:LIM:ABS:DATA
−13DBM,−13DBM,−13DBM,−13DBM,−13DBM,−13DBM,−10DBM,−10DBM,
−13DBM,−13DBM,−13DBM,−13DBM,−13DBM,−13DBM,−10DBM,−10DBM,
−13DBM,−13DBM,−13DBM,−13DBM
2.14 Spurious Emission Measurement Function

:CALCulate:SPURious[:RANGe][:LIST]:LIMit:ABSolute[:UPPer]:DATA[:STARt]
?
Spurious Emission Limit Start Level Query
Function
This command queries the absolute level limit of the start frequency in
each segment for the Spurious Emission measurement.

:CALCulate:SPURious[:RANGe][:LIST]:LIMit:ABSolute[:UPPer
]:DATA[:STARt]?
Response
<ampl_n>
Parameter
<ampl_n>
Range
Resolution
Suffix code

Absolute level limit of start frequency of
Segment n
–200 to 50 dBm
0.01 dB
None. Value is returned in dBm units.

Example of Use
To query the absolute level limit of the start frequency in each segment.
CALC:SPUR:LIM:ABS:DATA?
> –13.00,–13.00,–13.00,–13.00,–13.00,–
13.00,-10.00,-10.00,–13.00,–13.00,–13.00,–13.00,–13.00,–
13.00,-10.00,-10.00,–13.00,–13.00,–13.00,–13.00

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Query

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:CALCulate:SPURious[:RANGe][:LIST]:LIMit:ABSolute[:UPPer]:DATA:STOP: AUTO ON|OFF|1|0,ON|OFF|1|0,ON|OFF|1|0,ON|OFF|1|0,ON|OFF|1|0,ON|OFF|1|0, ON|OFF|1|0,ON|OFF|1|0,ON|OFF|1|0,ON|OFF|1|0,ON|OFF|1|0,ON|OFF|1|0,ON|OFF|1|0, ON|OFF|1|0,ON|OFF|1|0,ON|OFF|1|0,ON|OFF|1|0,ON|OFF|1|0,ON|OFF|1|0,ON|OFF|1|0 Spurious Emission Limit Stop Level Auto/Manual

Function

This command sets the absolute level limit of the stop frequency in each segment for the Spurious Emission measurement to Auto/Manual.

Command

:CALCulate:SPURious[:RANGe][:LIST]:LIMit:ABSolute[:UPPer]:DATA:STOP: AUTO <switch_n>

Parameter

<switch_n> Stop frequency of Segment n Auto/Manual

ON|1 Stop frequency is set to Auto.
OFF|0 Stop frequency is set to Manual.
Default On

Details

When set to On, the same as the value set in Limit Start Level is set to Limit Stop Level.

Example of Use

To set the absolute level limit of the stop frequency in each segment to Auto/Manual.
CALC:SPUR:LIM:ABS:DATA:STOP:AUTO ON,ON,ON,OFF,OFF,OFF,ON,ON,ON,ON,ON,ON,ON,ON,ON,ON,ON,ON,ON,ON
Function

This command queries Auto/Manual of the absolute level limit of the stop frequency in each segment for the Spurious Emission measurement.

Query

:CALCulate:SPURious[:RANGE][:LIST]:LIMit:ABSoleted[:UPper]:DATA:STOP:AUTO?

Response

<switch_n>

Parameter

<switch_n> Stop frequency of Segment n Auto/Manual
ON|1 Stop frequency is set to Auto.
OFF|0 Stop frequency is set to Manual.

Example of Use

To query Auto/Manual of the absolute level limit of the stop frequency in each segment.


> 1,1,1,1,0,0,0,1,1,1,1,1,1,1,1,1,1,1,1,1,1,1,1,1
Function

This command sets the absolute level limit of the stop frequency of each segment for the Spurious Emission measurement.

Command

:CALCulate:SPURious[:RANGE][:LIST]:LIMit:ABSolute[:UPPer]:DATA:STOP <ampl_n>,<ampl_2>,<ampl_3>,<ampl_4>,<ampl_5>,<ampl_6>,<ampl_7>,<ampl_8>,<ampl_9>,<ampl_10>,<ampl_11>,<ampl_12>,<ampl_13>,<ampl_14>,<ampl_15>,<ampl_16>,<ampl_17>,<ampl_18>,<ampl_19>,<ampl_20>

Parameter

- **<ampl_n>**
  - Absolute level limit of stop frequency in Segment n
  - Range: −200 dBm to 50 dBm
  - Resolution: 0.01 dB
  - Suffix Code: DBM,DM
  - Default: Auto value

Example of Use

To set the absolute level limit of stop frequency in each segment.
−13,−13,−13,−13,−13,−13,−10,−13,−13,−13,−13,−13,−13,−13,−10,−10,−13,−13,−13,−13
2.14 Spurious Emission Measurement Function

:CALCulate:SPURious[:RANGe][:LIST]:LIMit:ABSolute[:UPPer]:DATA:STOP?
Spurious Emission Limit Stop Level Query

Function

This command queries the absolute level limit of the stop frequency in each segment for the Spurious Emission measurement.

Query

:CALCulate:SPURious[:RANGe][:LIST]:LIMit:ABSolute[:UPPer]:DATA:STOP?

Response

<ampl_n>

Parameter

<ampl_n> Absolute level limit of stop frequency of Segment n
Range -200 dBm to 50 dBm
Resolution 0.01 dB
Suffix code None. Value is returned in dBm units.

Example of Use

To set the absolute level limit of the stop frequency in each segment.
CALC:SPUR:LIM:ABS:DATA:STOP?
>
-13.00,-13.00,-13.00,-13.00,-13.00,-13.00,-10.00,-10.00,
-13.00,-13.00,-13.00,-13.00,-13.00,-13.00,-10.00,-10.00,
-13.00,-13.00,-13.00,-13.00,

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[:SENSe]:SPURious[:RANGe][:LIST]:PEAK:RESolution|:EXCursion
<rel_ampl_1>,<rel_ampl_2>,<rel_ampl_3>,<rel_ampl_4>,<rel_ampl_5>,<rel_ampl_6>,<rel_ampl_7>,<rel_ampl_8>,<rel_ampl_9>,<rel_ampl_10>,<rel_ampl_11>,<rel_ampl_12>,<rel_ampl_13>,<rel_ampl_14>,<rel_ampl_15>,<rel_ampl_16>,<rel_ampl_17>,<rel_ampl_18>,<rel_ampl_19>,<rel_ampl_20>

Spurious Emission Search Resolution

Function

This command sets the spurious search resolution when Result Type is set to Peaks.

Command

[:SENSe]:SPURious[:RANGe][:LIST]:PEAK:RESolution|:EXCursion <rel_ampl_n>

Parameter

<rel_ampl_n>  Spurious search resolution
  Range        0.001 to 50.00 dB
  Resolution   0.001 dB
  Suffix Code  DB
  Default      6 dB

Example of Use

To set the spurious search resolution.
SPUR:PEAK:RES 6,6,6,6,6,6,6,6,6,6,6,6,6,6,6,6,6,6,6,6,6
2.14 Spurious Emission Measurement Function

[SENSe]:SPURious[:RANGE][:LIST]:PEAK:RESolution|:EXCursion?
Spurious Emission Search Resolution

Function

This command queries the spurious search resolution when Result Type is Peaks.

Query

[:SENSe]:SPURious[:RANGE][:LIST]:PEAK:RESolution|:EXCursion?

Response

<rel_ampl_n>

Parameter

<rel_ampl_n> Spurious search resolution
Range 0.001 to 50.00 dB
Resolution 0.001 dB
Suffix code None. Value is returned in dB units.

Example of Use

To query the spurious search resolution.
SPUR:PEAK:RES?
>
6.000,6.000,6.000,6.000,6.000,10.000,10.000,10.000,6.000,6.000,6.000,6.000,6.000,6.000,6.000,6.000,6.000,6.000,6.000,6.000,6.000
[:SENSe]:SPURious[:RANGE][:LIST]:PEAK:THReshold
<real_1>,<real_2>,<real_3>,<real_4>,<real_5>,<real_6>,<real_7>,<real_8>,<real_9>,<real_10>,<real_11>,<real_12>,<real_13>,<real_14>,<real_15>,<real_16>,<real_17>,<real_18>,<real_19>,<real_20>

Spurious Emission Search Threshold Level

Function

This command sets the spurious search threshold when Result Type is Peaks.

Command

[:SENSe]:SPURious[:RANGE][:LIST]:PEAK:THReshold <real_n>

Parameter

<real_n> | Spurious search threshold
---------|-------------------
Range    | –200 to 50 dBm
Resolution | 0.01 dB
Suffix Code | DBM, DM
Default  | –90 dBm

Example of Use

To set the spurious search threshold.

SPUR:PEAK:THR
–70,–70,–90,–90,–90,–90,–90,–90,–90,–90,–90,–90,–90,–90,–90,–90,–90,–90,–90,–90
[:SENSe]:SPURious[:RANGe][:LIST]:PEAK:THReshold?

Spurious Emission Search Threshold Level Query

Function

This command queries the spurious search threshold when Result Type is Peaks.

Query

[:SENSe]:SPURious[:RANGe][:LIST]:PEAK:THReshold?

Response

<real_n>

Parameter

<real_n>  Spurious search threshold
  Range     -200 to 50 dBm
  Resolution 0.01 dB
  Suffix code None. Value is returned in dBm units.

Example of Use

To query the spurious search threshold.

SPUR:PEAK:THR?

> -70.00,-70.00,-90.00,-90.00,-90.00,-90.00,-90.00,-90.00,-90.00,-90.00,-90.00,-90.00,-90.00,-90.00,-90.00,-90.00,-90.00,-90.00,-90.00,-90.00,-90.00,-90.00,-90.00,-90.00,-90.00,-90.00,-90.00
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[:SENSe]:SPURious:TDOMain[:RANGe][:LIST]:BANDwidth[:RESo lution]:COUPle ON|OFF|1|0,ON|OFF|1|0,ON|OFF|1|0,ON|OFF|1|0,ON|OFF|1|0, ON|OFF|1|0,ON|OFF|1|0,ON|OFF|1|0,ON|OFF|1|0,ON|OFF|1|0, ON|OFF|1|0,ON|OFF|1|0,ON|OFF|1|0,ON|OFF|1|0,ON|OFF|1|0, ON|OFF|1|0,ON|OFF|1|0,ON|OFF|1|0,ON|OFF|1|0,ON|OFF|1|0,ON|OFF|1|0, ON|OFF|1|0,ON|OFF|1|0,ON|OFF|1|0,ON|OFF|1|0,ON|OFF|1|0 Spurious Emission Couple Segment RBW

Function

This command sets whether the same as the value set in Segment Setup is automatically set to RBW Value in Time Domain Setup.

Command

[:SENSe]:SPURious:TDOMain[:RANGe][:LIST]:BANDwidth[:RESo lution]:COUPle <switch_n>

Parameter

<switch_n>  Shared setting On/Off

ON|1  Sets the shared setting to On.
OFF|0  Sets the shared setting to Off.
Default  On

Example of Use

To set whether the same as the value set in Segment Setup is automatically set to RBW Value in Time Domain Setup.

SPUR:TDOM:BAND:COUP
ON, ON, ON, OFF, OFF, ON, ON, ON, ON, ON, ON, OFF, OFF, ON, ON
[:SENSe]:SPURious:TDOMain[:RANGe][:LIST]:BANDwidth[:RESolution]:COUPle?

Spurious Emission Couple Segment RBW Query

Function

This command queries the On/Off state of the setting for whether the same as the value set in Segment Setup is automatically set to RBW Value in Time Domain Setup.

Query

[:SENSe]:SPURious:TDOMain[:RANGe][:LIST]:BANDwidth[:RESolution]:COUPle?

Response

<switch_n>

Parameter

<switch_n> Shared setting On/Off
   1 On
   0 Off

Example of Use

To query the On/Off state of the setting for whether the same as the value set in Segment Setup is automatically set to RBW Value in Time Domain Setup.

SPUR:TDOM:BAND:COUP?
> 1,1,1,1,0,0,1,1,1,1,1,1,0,0,1,1,1,1
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[:SENSe]:SPURious:TDOMain[:RANGe][:LIST]:BANDwidth[:RESo]olution
<bandwidth_1>,<bandwidth_2>,<bandwidth_3>,<bandwidth_4>,<bandwidth_5>,<bandwidth_6>,<bandwidth_7>,<bandwidth_8>,<bandwidth_9>,<bandwidth_10>,<bandwidth_11>,<bandwidth_12>,<bandwidth_13>,<bandwidth_14>,
<bandwidth_15>,<bandwidth_16>,<bandwidth_17>,<bandwidth_18>,<bandwidth_19>,<bandwidth_20>

Spurious Emission Time Domain RBW

Function

This command sets RBW in Time Domain Setup.

Command

[:SENSe]:SPURious:TDOMain[:RANGe][:LIST]:BANDwidth[:RESolution] <bandwidth_n>

Parameter

<bandwidth_n>  Resolution bandwidth (RBW) of Segment n

[MS269xA]
Range/Resolution 30 Hz to 31.25 MHz
Set to any of 30 Hz to 3 MHz (1-3 sequence), 50
kHz, 5 MHz, 10 MHz, 20 MHz, and 31.25 MHz.

[MS2830A], [MS2840A]
Range/Resolution 30 Hz to 31.25 MHz
Set to any of 30 Hz to 3 MHz (1-3 sequence), 500
Hz, 50 kHz, 2 MHz, 5 MHz, 10 MHz, 20 MHz,
and 31.25 MHz.

[MS2850A]
Range/Resolution Set to any of 30 Hz to 3 MHz (1-3 sequence), 500
Hz, 50 kHz, 2 MHz, 5 MHz, and 10 MHz.

[Common]
Suffix Code HZ,KHZ,KZ,MHZ,MZ,GHZ,GZ
Hz is used when omitted.

Default
Segment 1 1 kHz
Segment 2 10 kHz
Segment 3 100 kHz
Segment 4 1 MHz
Segment 5 to 20 Auto value

Details

For MS2830A, MS2840A, RBW 20 MHz or greater is only available for
MS2830A-005/105/007/009/109, MS2840A-005/105/009/109.
For RBW 31.25 MHz, it is not a Gauss filter but a flat-top characteristic filter.

Example of Use

To set RBW in Time Domain Setup.

```
SPUR:TDOM:Band
3KHZ,3KHZ,10KHZ,10KHZ,10KHZ,10KHZ,10KHZ,10KHZ,10KHZ,10KHZ,
10KHZ,10KHZ,10KHZ,10KHZ,10KHZ,10KHZ,10KHZ,10KHZ
```
Chapter 2  SCPI Device Message Details

[:SENSe]:SPURious:TDOMain[:RANGe][:LIST]:BANDwidth[:RESolution]?
Spurious Emission Time Domain RBW Query

Function
This command queries RBW in Time Domain Setup.

Query
[:SENSe]:SPURious:TDOMain[:RANGe][:LIST]:BANDwidth[:RESolution]?

Response
<bANDwidth_n>

Parameter

<bANDwidth_n>  Resolution bandwidth (RBW) of Segment n

[MS269xA]
Range/Resolution  30 Hz to 31.25 MHz
Value is returned in any of 30 Hz to 3 MHz (1-3 sequence), 50 kHz, 5 MHz, 10 MHz, 20 MHz, and 31.25 MHz.

[MS2830A], [MS2840A]
Range/Resolution  30 Hz to 31.25 MHz
Value is returned in any of 30 Hz to 3 MHz (1-3 sequence), 500 Hz, 50 kHz, 2 MHz, 5 MHz, 10 MHz, 20 MHz, and 31.25 MHz.

[MS2850A]
Range/Resolution  Set to any of 30 Hz to 3 MHz (1-3 sequence), 500 Hz, 50 kHz, 2 MHz, 5 MHz, and 10 MHz.

[Common]
Suffix code  None. Value is returned in Hz units.

Details
For MS2830A, MS2840A, RBW 20 MHz or greater is only available for MS2830A-005/105/007/009/109, MS2840A-005/105/009/109.
For RBW 31.25 MHz, it is not a Gauss filter but a flat-top characteristic filter.

Example of Use
To query RBW in Time Domain Setup.
SPUR:TDOM:BAND?
>
3000,3000,10000,10000,10000,10000,10000,10000,10000,10000,10000,10000,10000,10000,10000
Spurious Emission Measurement Function

\[
[:\text{SENSe}]\text{:SPURious}:\text{TDOMain}[[:\text{RANGe}][[:\text{LIST}]]]:\text{BANDwidth}:\text{VIDeo}:\text{COUPle}
\]

ON|OFF|1|0,ON|OFF|1|0,ON|OFF|1|0,ON|OFF|1|0,ON|OFF|1|0,ON|OFF|1|0,ON|OFF|1|0,
ON|OFF|1|0,ON|OFF|1|0,ON|OFF|1|0,ON|OFF|1|0,ON|OFF|1|0,ON|OFF|1|0,ON|OFF|1|0,
ON|OFF|1|0,ON|OFF|1|0,ON|OFF|1|0,ON|OFF|1|0,ON|OFF|1|0,ON|OFF|1|0,ON|OFF|1|0,
ON|OFF|1|0,ON|OFF|1|0,ON|OFF|1|0,ON|OFF|1|0,ON|OFF|1|0,ON|OFF|1|0

Spurious Emission Couple Segment VBW

Function

This command sets whether the same as the value set in Segment Setup is automatically set to VBW Value in Time Domain Setup.

Command

\[
[:\text{SENSe}]\text{:SPURious}:\text{TDOMain}[[:\text{RANGe}][[:\text{LIST}]]]:\text{BANDwidth}:\text{VIDeo}:\text{COUPle} <\text{switch}_n>
\]

Parameter

\[
<\text{switch}_n> \\
\text{ON}|1 \\
\text{OFF}|0 \\
\text{Default}
\]

Shared setting On/Off

On

Off

Default

Example of Use

To set whether the same as the value set in Segment Setup is automatically set to VBW Value in Time Domain Setup.

\[
\text{SPUR}:\text{TDOM}:\text{BAND}:\text{VID}:\text{COUP}
\]

ON, ON, ON, OFF, OFF, ON, ON, ON, ON, ON, ON, ON, ON, OFF, OFF, ON, ON, ON, ON, ON
Chapter 2  SCPI Device Message Details

[:SENSe]:SPURious:TDOMain[:RANGE][:LIST]:BANDwidth:VIDeo:COUPle?
Spurious Emission Couple Segment VBW Query

Function

This command queries the On/Off state of the setting for whether the same as the value set in Segment Setup is automatically set to VBW Value in Time Domain Setup.

Query

[:SENSe]:SPURious:TDOMain[:RANGE][:LIST]:BANDwidth:VIDeo :COUPle?

Response

<switch_n>

Parameter

<switch_n>  Shared setting On/Off
ON|1  On
OFF|0  Off

Example of Use

To query the On/Off state of the setting for whether the same as the value set in Segment Setup is automatically set to VBW Value in Time Domain Setup.
SPUR:TDOM:BAND:VID:COUP?
> 1,1,1,1,0,0,1,1,1,1,1,1,1,0,0,1,1,1,1
2.14 Spurious Emission Measurement Function

[:SENSe]:SPURious:TDOMain[:RANGe][:LIST]:BANDwidth:VIDeo
<bandwidth_1>|OFF,<bandwidth_2>|OFF,<bandwidth_3>|OFF,<bandwidth_4>
|OFF,<bandwidth_5>|OFF,<bandwidth_6>|OFF,<bandwidth_7>|OFF,<bandwidth_8>
|OFF,<bandwidth_9>|OFF,<bandwidth_10>|OFF,<bandwidth_11>|OFF,
<bandwidth_12>|OFF,<bandwidth_13>|OFF,<bandwidth_14>|OFF,<bandwidth_15>
|OFF,<bandwidth_16>|OFF,<bandwidth_17>|OFF,<bandwidth_18>|OFF,
<bandwidth_19>|OFF,<bandwidth_20>|OFF

Spurious Emission Time Domain VBW

Function

This command sets VBW in Time Domain Setup.

Command

[:SENSe]:SPURious:TDOMain[:RANGe][:LIST]:BANDwidth:VIDeo
<bandwidth_n>|OFF

Parameter

<bandwidth_n> Video bandwidth of Segment n (VBW)
Range/Resolution 1 Hz to 10 MHz (1-3 sequence), 5 kHz
Suffix Code HZ,KHZ,KZ,MHz,MZ,GHZ,GZ
Hz is used when omitted.
OFF VBW is set to Off.

Details

The setting range of this function is limited depending on the setting of RBW. For details, refer to MS2690A/MS2691A/MS2692A Signal Analyzer Operation Manual (Spectrum Analyzer Function Operation) or MS2830A/MS2840A/MS2850A Signal Analyzer Operation Manual (Spectrum Analyzer Function Operation).

Example of Use

To set VBW in Time Domain Setup.
SPUR:TDOM:BAND:VID
3KHZ,3KHZ,1MHZ,1MHZ,1MHZ,1MHZ,1MHZ,1MHZ,1MHZ,1MHZ,1MHZ,1MHZ,1MHZ,1MHZ,1MHZ,1MHZ,1MHZ,1MHZ,1MHZ,1MHZ,1MHZ
Chapter 2  SCPI Device Message Details

[:SENSe]:SPURious:TDOMain[:RANGE][:LIST]:BANDwidth:VIDeo?

Spurious Emission Time Domain VBW Query

Function

This command queries VBW in Time Domain Setup.

Query

[:SENSe]:SPURious:TDOMain[:RANGE][:LIST]:BANDwidth:VIDeo?

Response

<bandwidth_n>

Parameter

<bandwidth_n>  Video bandwidth of Segment n (VBW)
Range/Resolution  1 Hz to 10 MHz (1 to 3 sequence), 5 kHz
Suffix Code  None. Hz is used when omitted.
OFF  VBW is set to Off.

Example of Use

To query VBW in Time Domain Setup.

SPUR:TDOM:BAND:VID?
>
3000,3000,1000000,1000000,1000000,1000000,1000000,1000000
0,1000000,1000000,1000000,1000000,1000000,1000000,1000000
0,1000000,1000000,1000000,1000000,1000000
2.14 Spurious Emission Measurement Function

[:SENSe]:SPURious:TDOMain[:RANGe][:LIST]:SWEep:TIME
<seconds_1>,<seconds_2>,<seconds_3>,<seconds_4>,<seconds_5>,<seconds_6>,<seconds_7>,<seconds_8>,<seconds_9>,<seconds_10>,<seconds_11>,<seconds_12>,<seconds_13>,<seconds_14>,<seconds_15>,<seconds_16>,<seconds_17>,<seconds_18>,<seconds_19>,<seconds_20>

Spurious Emission Time Domain Sweep Time

Function

This command sets the sweep time in Time Domain Setup.

Command

[:SENSe]:SPURious:TDOMain[:RANGe][:LIST]:SWEep:TIME
<seconds_n>

Parameter

<seconds_n> Sweep time
Range 1 µs to 1000 s (For Time-axis measurement)
Suffix Code NS,US,MS,S
S is used when omitted.
Default Auto value

Example of Use

To set the sweep time in Time Domain Setup.
SPUR:TDOM:SWE:TIME
0.1,0.1,0.1,0.1,0.1,0.1,0.1,0.1,0.1,0.1,0.2,0.3,0.1,0.1,
0.1,0.1,0.1,0.1,0.1,0.1
[:SENSe]:SPURious:TDOMain[:RANGe][:LIST]:SWEep:TIME?
Spurious Emission Time Domain Sweep Time Query

Function

This command queries the sweep time in Time Domain Setup.

Query

[:SENSe]:SPURious:TDOMain[:RANGe][:LIST]:SWEep:TIME?

Response

<seconds_n>

Parameter

<seconds_n> Sweep time
   Range 1 µs to 1000 s
   Suffix code None. Value is returned in S units.

Example of Use

To query the sweep time in Time Domain Setup.

SPUR:TDOM:SWE:TIME?
>
0.100000,0.100000,0.100000,0.100000,0.100000,0.100000,0.100000,0.100000,0.100000,0.200000,0.300000,0.100000,0.100000,0.100000,0.100000,0.100000,0.100000,0.100000,0.100000
2.14 Spurious Emission Measurement Function

[:SENSe]:SPURious:TDOMain[:RANGe][:LIST]:DETector[1][:FUNCtion]
POSitive|SAMPle|RMS,POSitive|SAMPle|RMS,POSitive|SAMPle|RMS,POSitive|SAMPle|RMS,POSitive|SAMPle|RMS,POSitive|SAMPle|RMS,POSitive|SAMPle|RMS,POSitive|SAMPle|RMS,POSitive|SAMPle|RMS,POSitive|SAMPle|RMS,POSitive|SAMPle|RMS,POSitive|SAMPle|RMS,POSitive|SAMPle|RMS,POSitive|SAMPle|RMS,POSitive|SAMPle|RMS

Spurious Emission Time Domain Detection

Function

This command selects the detection mode of the waveform pattern in Time Domain Setup.

Command

[:SENSe]:SPURious:TDOMain[:RANGe][:LIST]:DETector[1][:FUNCtion] <mode_n>

Parameter

<mode_n> Detection mode of Segment n
  POSitive Positive peak detection
  SAMPle Sample detection
  RMS RMS detection
  Default RMS

Example of Use

To select the detection mode of the waveform pattern in Time Domain Setup.

SPUR:TDOM:DET
POS, POS, RMS, POS, POS, POS, POS, POS, POS, RMS, POS, POS, POS, RMS, POS, POS, RMS, POS, POS, POS, RMS, POS, POS, POS, POS
Chapter 2  SCPI Device Message Details

[:SENSe]:SPURious:TDOMain[:RANGE][:LIST]:DETector[1][:FUNCTION]?
Spurious Emission Time Domain Detection Query

Function

This command queries the detection mode of the waveform pattern in Time Domain Setup.

Query

[:SENSe]:SPURious:TDOMain[:RANGE][:LIST]:DETector[1][:FUNCTION]?

Response

<mode_n>

Parameter

<mode_n>  Detection mode of Segment n
POS        Positive peak detection
SAMP       Sample detection
RMS        RMS detection

Example of Use

To query the detection mode of the waveform pattern in Time Domain Setup.
SPUR:TDOM:DET?
>
POS,POS,POS,RMS,POS,POS,POS,POS,POS,POS,POS,POS,POS,POS,POS,POS,POS,POS,RMS,POS,POS,POS,POS,
2.14 Spurious Emission Measurement Function

`:MMEMory:STORe:SPURious:TBALe <register>`

Save Spurious Emission Parameter

**Function**

This command saves the parameter for the Spurious Emission measurement.

**Command**

`:MMEMory:STORe:SPURious:TBALe <register>`

**Parameter**

<table>
<thead>
<tr>
<th>Parameter</th>
<th>Description</th>
<th>Range</th>
</tr>
</thead>
<tbody>
<tr>
<td>&lt;register&gt;</td>
<td>Register to be saved</td>
<td>1 to 8</td>
</tr>
</tbody>
</table>

**Example of Use**

To save the parameter in Register 3.

```
MMEM:STOR:SPUR:TABL 3
```

`:MMEMory:LOAD:SPURious:TBALe <register>`

Recall Spurious Emission Parameter

**Function**

This command queries the saved parameter for the Spurious Emission measurement.

**Command**

`:MMEMory:LOAD:SPURious:TBALe <register>`

**Parameter**

<table>
<thead>
<tr>
<th>Parameter</th>
<th>Description</th>
<th>Range</th>
</tr>
</thead>
<tbody>
<tr>
<td>&lt;register&gt;</td>
<td>Register to read parameter</td>
<td>1 to 8</td>
</tr>
</tbody>
</table>

**Example of Use**

To query the parameter of Register 3.

```
MMEM:LOAD:SPUR:TABL 3
```
Chapter 2  SCPI Device Message Details

:CONFigure:SPURious
Spurious Emission Configure

Function
This command sets the Spurious Emission measurement to On.

Command
:CONFigure:SPURious

Details
No measurement is performed.
When Spurious Emission measurement is set to On, the active trace is set to A.

Example of Use
To set the Spurious measurement to On.
CONF:SPUR

:INITiate:SPURious
Spurious Emission Initiate

Function
This command starts the Spurious Emission measurement.

Command
:INITiate:SPURious

Details
When this function is executed, the Spurious measurement is set to On and the measurement starts.
To read out the measurement results after executing this command, perform the synchronization control using the "*WAI" command.

Example of Use
To start the Spurious measurement.
INIT:SPUR
2.14 Spurious Emission Measurement Function

:FETCh:SPURious[n]?
Spurious Emission Fetch

Function

This command outputs the measurement result for the Spurious Emission measurement.

Query

:FETCh:SPURious[n]?

Response

When Result Mode is A:
(When Spurious Emission Result Type is Worst)
<judge>,<spur_1>,<range_1>,<freq_1>,<peak_1>,<margin_1>,
<limit_1>,<judge_1>,<spur_2>,<range>,<freq_2>,<peak_2>,<margin_2>,<limit_2>,<judge_2>
......
<spur_20>,<range_20>,<freq_20>,<peak_20>,<margin_20>,<limit_20>,<judge_20>
(n=1 or when omitted)

(When Spurious Emission Result Type is Peaks)
<judge>,<spur_1>,<range_1>,<freq_1>,<peak_1>,<margin_1>,
<limit_1>,<judge_1>,<spur_2>,<range_2>,<freq_2>,<peak_2>,
<margin_2>,<limit_2>,<judge_2>
......
<spur_n>,<freq_n>,<peak_n>,<margin_n>,<limit_n>,<judge_n>
(n=1 or when omitted)

When Result Mode is B:
<spur_1>,<range_1>,<freq_1>,<peak_1>,<limit_1>,<judge_1>,
<spur_2>,<range_2>,<freq_2>,<peak_2>,<limit_2>,<judge_2>
......
<spur_n>,<range_n>,<freq_n>,<peak_n>,<limit_n>,<judge_n>
(n=1 or when omitted.)

<tracedata_1>,<tracedata_2>.....<tracedata_m>
(n=2 to 21)
Chapter 2  SCPI Device Message Details

<number>
(n=22)

<tracedata_1>,<tracedata_2>...<tracedata_m>
(n=23 to 42)

Parameter

<spur_n> Spurious number
<range_n> Segment number of the detected spurious
<number> Number of the detected spurious
–999.0 is returned when an error occurs/no measurement is performed.
<freq_n> Frequency of Spurious
Values have no suffix code, are in Hz units, and have 0.01 Hz Resolution.
Only one value is returned when Marker Result Type is Worst.
–999999999999 is returned when an error occurs/no measurement is performed.
<peak_n> Absolute power of Spurious
Values have no suffix code, are in dBm units, and have 0.01 dB Resolution.
Only one value is returned when Marker Result Type is Worst.
–999.0 is returned when an error occurs/no measurement is performed.
<margin_n> Relative power from the limit line of Spurious
Values have no suffix code, are in dB units, and have 0.01 dB Resolution.
Only one value is returned when Marker Result Type is Worst.
–999.0 is returned when an error occurs/no measurement is performed.
<limit_n> Power value of the limit line of Spurious
Values have no suffix code, are in dBm units, and have 0.01 dB Resolution.
Only one value is returned when Marker Result Type is Worst.
–999.0 is returned when an error occurs/no measurement is performed.
<judge_n> Limit line judges the detected spurious as Pass or Fail.
0 is returned when judged as Pass, and 1 is returned when judged as Fail.
2.14 Spurious Emission Measurement Function

<tracedata_m>
  
n=2 to 21
  Returns a comma separated list of the trace data for the selected segment (where segment number = n-1).
  n=23 to 42
  Returns a comma separated list of the trace data for the selected segment (where segment number = n-22).
  Values have no suffix code, are in dBm units, and have 0.001 dB resolution.
  -999.0 is returned when no measurement is performed.

<judge>
  Pass/Fail judgment to the whole segment
  0 is returned when judged as Pass, and 1 is returned when Fail.
  -999.0 is returned when no measurement is performed.

Details

This function queries the result of the Spurious Emission measurement performed lastly. This function does not accompany any sweep, thus this function is used to query the measurement result in a different type, when the measurement has already completed.
Use READ command to perform re-measurement with redoing sweep.
A return value of this command varies depending on the compatible mode.
(cf. :SYSTem:RESult:MODE)

Example of Use

To obtain the result of the Spurious Emission measurement (when Result Mode is A, and when Spurious Emission Result Type is Worst).
FETC:SPUR?
>
0,1,1,135618.00,-64.25,51.25,-13.00,0,2,2,155970.00,-63.91,50.91,-13.00,0.....
Chapter 2  SCPI Device Message Details

:READ:SPURious[n]?
Spurious Emission Read

Function

This command performs the Spurious Emission measurement and outputs the result.
It works in the same way as the two commands are transmitted in the following order:
:INITiate:SPURious
:FETCh:SPURious[n]?

:MEASure:SPURious[n]?
Spurious Emission Measure

Function

This command performs the Spurious Emission measurement and outputs the result.
It works in the same way as the three commands are transmitted in the following order:
:CONFigure:SPURious
:INITiate:SPURious
:FETCh:SPURious[n]?

:DISPlay:SPURious:ANNotation:TITLe:DATA <string>
Spurious Emission Title Entry

Function

This command registers the title character string.
Refer to
:DISPlay:ANNotation:TITLe:DATA.

Related Command

This command has the same function as the following commands.
:DISPlay:ANNotation:TITLe:DATA
:DISPlay:ACPoweR:ANNotation:TITLe:DATA
:DISPlay:CHPoweR:ANNotation:TITLe:DATA
:DISPlay:OBWidth:ANNotation:TITLe:DATA
:DISPlay:SEMask:ANNotation:TITLe:DATA
:DISPlay:BPOWeR|:TXPoweR:ANNotation:TITLe:DATA
2.14 Spurious Emission Measurement Function

:DISPlay:SPURious:ANNotation:TITLe:DATA?

Spurious Emission Title Entry Query

Function

This command queries the title character string. Refer to :DISPlay:ANNotation:TITLe:DATA?.

Related Command

This command has the same function as the following commands.
:DISPlay:ANNotation:TITLe:DATA?
:DISPlay:ACPower:ANNotation:TITLe:DATA?
:DISPlay:CHPower:ANNotation:TITLe:DATA?
:DISPlay:OBWidth:ANNotation:TITLe:DATA?
:DISPlay:SEMask:ANNotation:TITLe:DATA?
:DISPlay:BPOWer|:TXPower:ANNotation:TITLe:DATA?

:DISPlay:SPURious:VIEW[1]:WINDow[1]:TRACe:Y[:SCALe]:PDIVision

<rel_ampl>

Spurious Emission Log Scale Range

Function

This command sets the Y-axis scale range when the scale mode is set to Log. Refer to :DISPlay:WINDow[1]:TRACe:Y[:SCALe]:[LOGarithmic]:PDIVision.

Related Command

This command has the same function as the following commands.
:DISPlay:WINDow[1]:TRACe:Y[:SCALe]:[LOGarithmic]:PDIVision
:DISPlay:ACPower:VIEW[1]:WINDow[1]:TRACe:Y[:SCALe]:PDIVision
:DISPlay:CHPower:VIEW[1]:WINDow[1]:TRACe:Y[:SCALe]:PDIVision
:DISPlay:OBWidth:VIEW[1]:WINDow[1]:TRACe:Y[:SCALe]:PDIVision
:DISPlay:SEMask:VIEW[1]:WINDow[1]:TRACe:Y[:SCALe]:PDIVision
:DISPlay:BPOWer|:TXPower:VIEW[1]:WINDow[1]:TRACe:Y[:SCALe]:PDIVision
Chapter 2  SCPI Device Message Details

:DISPlay:SPURious:VIEW[1]:WINDow[1]:TRACe:Y[:SCALe]:PDIVision?
Spurious Emission Log Scale Range Query

Function

This command queries the Y-axis scale range when Scale Mode is set to Log.

Refer to
:DISPlay:WINDow[1]:TRACe:Y[:SCALe]:[LOGarithmic]:PDIVision?.

Related Command

This command has the same function as the following commands.
:DISPlay:WINDow[1]:TRACe:Y[:SCALe]:[LOGarithmic]:PDIVision?
:DISPlay:ACPower:VIEW[1]:WINDow[1]:TRACe:Y[:SCALe]:PDIVision?
:DISPlay:CHPower:VIEW[1]:WINDow[1]:TRACe:Y[:SCALe]:PDIVision?
:DISPlay:OBWidth:VIEW[1]:WINDow[1]:TRACe:Y[:SCALe]:PDIVision?
:DISPlay:SEMask:VIEW[1]:WINDow[1]:TRACe:Y[:SCALe]:PDIVision?
:DISPlay:BPOWer|:TXPower:VIEW[1]:WINDow[1]:TRACe:Y[:SCALe]:PDIVision?
2.14 Spurious Emission Measurement Function

[:SENSe]:SPURious:AVERage[:STATE] ON|OFF|1|0

Spurious Emission Storage Mode

Function

This command sets the storage mode of Trace A.
Refer to
:TRACe[1]|2|3|4|5|6:STORage:MODE.

Related Command

This command has the same function as the following commands.
:TRACe[1]|2|3|4|5|6:STORage:MODE
[:SENSe]:ACPower:AVERage[:STATE]
[:SENSe]:CHPower:AVERage[:STATE]
[:SENSe]:OBWidth:AVERage[:STATE]
[:SENSe]:SEMask:AVERage[:STATE]
[:SENSe]:BPOWer|:TXPower:AVERage[:STATE]

[:SENSe]:SPURious:AVERage[:STATE]?

Spurious Emission Storage Mode Query

Function

This command queries the storage mode of Trace A.
Refer to
:TRACe[1]|2|3|4|5|6:STORage:MODE?.

Related Command

This command has the same function as the following commands.
:TRACe[1]|2|3|4|5|6:STORage:MODE?
[:SENSe]:ACPower:AVERage[:STATE]?
[:SENSe]:CHPower:AVERage[:STATE]?
[:SENSe]:OBWidth:AVERage[:STATE]?
[:SENSe]:SEMask:AVERage[:STATE]?
[:SENSe]:BPOWer|:TXPower:AVERage[:STATE]?
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:TRIGger:SPURious[:SEQuence]:SOURce
EXTernal[1]|IMMediate|WIF|RF Burst|VIDeo|SG|BBIF|FRAMe
Spurious Emission Trigger Source

Function

This command selects the trigger signal source.
Refer to
:TRIGger[:SEQuence]:SOURce.

Related Command

This command has the same function as the following commands.
:TRIGger[:SEQuence]:SOURce
:TRIGger:ACPower[:SEQuence]:SOURce?
:TRIGger:CHPower[:SEQuence]:SOURce
:TRIGger:OBWidth[:SEQuence]:SOURce
:TRIGger:SEMask[:SEQuence]:SOURce
:TRIGger:BPOWer[:TXPower[:SEQuence]:SOURce

:TRIGger:SPURious[:SEQuence]:SOURce?
Spurious Emission Trigger Source Query

Function

This command queries the trigger signal source.
Refer to
:TRIGger[:SEQuence]:SOURce?.

Related Command

This command has the same function as the following commands.
:TRIGger[:SEQuence]:SOURce?
:TRIGger:ACPower[:SEQuence]:SOURce?
:TRIGger:CHPower[:SEQuence]:SOURce?
:TRIGger:OBWidth[:SEQuence]:SOURce?
:TRIGger:SEMask[:SEQuence]:SOURce?
:TRIGger:BPOWer[:TXPower[:SEQuence]:SOURce?
2.14 Spurious Emission Measurement Function

:CALCulate:SPURious:MARKer[1]|2|3|4|5|6|7|8|9|10:MODE
NORMal|POSition|DELTa|FIXed|OFF

Spurious Emission Marker Mode

Function

This command sets the marker mode.
Refer to
:CALCulate:MARKer[1]|2|3|4|5|6|7|8|9|10:MODE.

Related Command

This command has the same function as the following commands.
:CALCulate:MARKer[1]|2|3|4|5|6|7|8|9|10:MODE
:CALCulate:ACPower:MARKer[1]|2|3|4|5|6|7|8|9|10:MODE
:CALCulate:CHPower:MARKer[1]|2|3|4|5|6|7|8|9|10:MODE
:CALCulate:OBWidth:MARKer[1]|2|3|4|5|6|7|8|9|10:MODE
:CALCulate:BPOWer|:TXPower:MARKer[1]|2|3|4|5|6|7|8|9|10:MODE

:CALCulate:SPURious:MARKer[1]|2|3|4|5|6|7|8|9|10:MODE?

Spurious Emission Marker Mode Query

Function

This command queries the marker mode.
Refer to
:CALCulate:MARKer[1]|2|3|4|5|6|7|8|9|10:MODE?.

Related Command

This command has the same function as the following commands.
:CALCulate:MARKer[1]|2|3|4|5|6|7|8|9|10:MODE?
:CALCulate:ACPower:MARKer[1]|2|3|4|5|6|7|8|9|10:MODE?
:CALCulate:CHPower:MARKer[1]|2|3|4|5|6|7|8|9|10:MODE?
:CALCulate:OBWidth:MARKer[1]|2|3|4|5|6|7|8|9|10:MODE?
:CALCulate:BPOWer|:TXPower:MARKer[1]|2|3|4|5|6|7|8|9|10:MODE?
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:CALCulate:SPURious:MARKer[1]|2|3|4|5|6|7|8|9|10:X <freq>
Spurious Emission Zone Marker Frequency (Time)

Function

This command moves the center of the zone marker to the specified frequency (time).
Refer to
:CALCulate:MARKer[1]|2|3|4|5|6|7|8|9|10:X.

Related Command

This command has the same function as the following commands.
:CALCulate:MARKer[1]|2|3|4|5|6|7|8|9|10:X

:CALCulate:SPURious:MARKer[1]|2|3|4|5|6|7|8|9|10:X?
Spurious Emission Zone Marker Frequency (Time) Query

Function

This command queries the center of the zone marker.
Refer to
:CALCulate:MARKer[1]|2|3|4|5|6|7|8|9|10:X?.

Related Command

This command has the same function as the following commands.
:CALCulate:MARKer[1]|2|3|4|5|6|7|8|9|10:X?
:CALCulate:ACPower:MARKer[1]|2|3|4|5|6|7|8|9|10:X?
:CALCulate:CHPower:MARKer[1]|2|3|4|5|6|7|8|9|10:X?
:CALCulate:OBWidth:MARKer[1]|2|3|4|5|6|7|8|9|10:X?
:CALCulate:BPOWer|:TXPower:MARKer[1]|2|3|4|5|6|7|8|9|10:X?
2.14 Spurious Emission Measurement Function


Spurious Emission Zone Marker Position

Function

This command moves the center of the zone marker to the specified position.
Refer to
:CALCulate:MARKer[1]|2|3|4|5|6|7|8|9|10:X:POSITION.

Related Command

This command has the same function as the following commands.
:CALCulate:MARKer[1]|2|3|4|5|6|7|8|9|10:X:POSITION

:CALCulate:SPURious:MARKer[1]|2|3|4|5|6|7|8|9|10:X:POSITION?

Spurious Emission Zone Marker Position Query

Function

This command queries the center point of the zone marker.
Refer to
:CALCulate:MARKer[1]|2|3|4|5|6|7|8|9|10:X:POSITION?.

Related Command

This command has the same function as the following commands.
:CALCulate:MARKer[1]|2|3|4|5|6|7|8|9|10:X:POSITION?
:CALCulate:OBWidth:MARKer[1]|2|3|4|5|6|7|8|9|10:X:POSITION?
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:CALCulate:SPURious:MARKer[1]|2|3|4|5|6|7|8|9|10:Y?
Spurious Emission Marker Level Query

Function

This command queries the level of the marker point.
Refer to
:CALCulate:MARKer[1]|2|3|4|5|6|7|8|9|10[:PEAK]:Y?.

Related Command

This command has the same function as the following commands.
:CALCulate:MARKer[1]|2|3|4|5|6|7|8|9|10[:PEAK]:Y?
:CALCulate:ACPower:MARKer[1]|2|3|4|5|6|7|8|9|10:Y?
:CALCulate:CHPower:MARKer[1]|2|3|4|5|6|7|8|9|10:Y?
:CALCulate:OBWidth:MARKer[1]|2|3|4|5|6|7|8|9|10:Y?

:CALCulate:SPURious:MARKer:AOFF
Spurious Emission All Marker Off

Function

This command sets all the markers to Off.
Refer to
:CALCulate:MARKer:AOFF.

Related Command

This command has the same function as the following commands.
:CALCulate:MARKer:AOFF
:CALCulate:ACPower:MARKer:AOFF
:CALCulate:CHPower:MARKer:AOFF
:CALCulate:OBWidth:MARKer:AOFF
:CALCulate:BPOWer|:TXPower:MARKer:AOFF
2.14 Spurious Emission Measurement Function

:CALCulate:SPURious:MARKer[1]|2|3|4|5|6|7|8|9|10:MAXimum

Spurious Emission Peak Search

Function

This command searches for the maximum level point of active trace and moves the marker point to it.
Refer to

Related Command

This command has the same function as the following commands.
:CALCulate:MARKer[1]|2|3|4|5|6|7|8|9|10:MAXimum
:CALCulate:ACPower:MARKer[1]|2|3|4|5|6|7|8|9|10:MAXimum
:CALCulate:CHPower:MARKer[1]|2|3|4|5|6|7|8|9|10:MAXimum
:CALCulate:OBWidth:MARKer[1]|2|3|4|5|6|7|8|9|10:MAXimum
:CALCulate:BPOWer|:TXPower:MARKer[1]|2|3|4|5|6|7|8|9|10:
MAXimum


Spurious Emission Next Peak Search

Function

This command searches for the feature point of the active trace and moves the marker point to the peak point below the level of the active marker.
Refer to
:CALCulate:MARKer[1]|2|3|4|5|6|7|8|9|10:MAXimum:NEXT.

Related Command

This command has the same function as the following commands.
:CALCulate:MARKer[1]|2|3|4|5|6|7|8|9|10:MAXimum:NEXT

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:CALCulate:SPURious:MARKer[1]|2|3|4|5|6|7|8|9|10:MAXimum:POWer

Spurious Emission Power Peak Search

Function

This command moves the active marker to the position where the peak power of the zone width of the active marker becomes maximum in the measurement band.
Refer to
:CALCulate:MARKer[1]|2|3|4|5|6|7|8|9|10:MAXimum:POWer

Related command

This command has the same function as the following command.
:CALCulate:MARKer[1]|2|3|4|5|6|7|8|9|10:MAXimum:POWer
:CALCulate:CHPower:MARKer[1]|2|3|4|5|6|7|8|9|10:MAXimum:POWer
:CALCulate:OBWidth:MARKer[1]|2|3|4|5|6|7|8|9|10:MAXimum:POWer


Spurious Emission Next Power Peak Search

Function

This command searches for the next largest peak power in the zone width compared to the total power of the zone width of the active marker in the measurement band and moves the active marker.
Refer to
:CALCulate:MARKer[1]|2|3|4|5|6|7|8|9|10:MAXimum:POWer:NEXT

Related command

This command has the same function as the following command.
:CALCulate:MARKer[1]|2|3|4|5|6|7|8|9|10:MAXimum:POWer:NEXT
Spurious Emission Measurement Function

:CALCulate:SPURious:MARKer[1]|2|3|4|5|6|7|8|9|10:MINimum
Spurious Emission Minimum Search

Function

This command searches for the minimum level point of the active trace and moves the marker point to that point.
Refer to

Related Command

This command has the same function as the following command.
:CALCulate:MARKer[1]|2|3|4|5|6|7|8|9|10:MINimum
:CALCulate:ACPower:MARKer[1]|2|3|4|5|6|7|8|9|10:MINimum
:CALCulate:CHPower:MARKer[1]|2|3|4|5|6|7|8|9|10:MINimum

Spurious Emission Next Minimum Search

Function

This command searches for the next dip of the active trace and moves the marker point to that point.
Refer to
:CALCulate:MARKer[1]|2|3|4|5|6|7|8|9|10:MINimum:NEXT.

Related Command

This command has the same function as the following command.
:CALCulate:MARKer[1]|2|3|4|5|6|7|8|9|10:MINimum:NEXT
[:SENSe]:SPURious:SWEep:TIME:AUTO:MODE NORMal|FAST
Spurious Emission Auto Sweep Time Mode

**Function**

This command sets the Fast/Normal mode when the automatic setting of
the sweep time is set to On.
Refer to
[:SENSe]:SWEep:TIME:AUTO:MODE <mode>.

**Related Command**

This command has the same function as the following command.
[:SENSe]:SWEep:TIME:AUTO:MODE

[:SENSe]:SPURious:SWEep:TIME:AUTO:MODE?
Spurious Emission Auto Sweep Time Mode Query

**Function**

This command queries the Fast/Normal mode when the automatic setting
of the sweep time is set to On.
Refer to
[:SENSe]:SWEep:TIME:AUTO:MODE?.

**Related Command**

This command has the same function as the following command.
[:SENSe]:SWEep:TIME:AUTO:MODE?
Spurious Emission Measurement Function

:CALCulate:SPURious:MARKer[1]|2|3|4|5|6|7|8|9|10:REFerence <integer>

Spurious Emission Relative To

Function

This command sets the reference marker when the marker mode is set to Delta.
Refer to

Related Command

This command has the same function as the following commands.
:CALCulate:ACPower:MARKer[n]:REFerence
:CALCulate:CHPower:MARKer[n]:REFerence
:CALCulate:OBWidth:MARKer[n]:REFerence
:CALCulate:BPOWer|:TXPower:MARKer[n]:REFerence

:CALCulate:SPURious:MARKer[1]|2|3|4|5|6|7|8|9|10:REFerence?

Spurious Emission Relative To Query

Function

This command queries the reference when the marker mode is set to Delta.
Refer to
:CALCulate:MARKer[1]|2|3|4|5|6|7|8|9|10:REFerence?.

Related Command

This command has the same function as the following commands.
:CALCulate:ACPower:MARKer[n]:REFerence?
:CALCulate:CHPower:MARKer[n]:REFerence?
:CALCulate:OBWidth:MARKer[n]:REFerence?
:CALCulate:BPOWer|:TXPower:MARKer[n]:REFerence?
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:CALCulate:SPURious:MARKer:COUPle[:STATE] ON|OFF|1|0
Spurious Emission Couple Zone

Function

This command enables/disables the setting of the function that the same value is automatically set to Zone Width in each marker.
Refer to
:CALCulate:MARKer:COUPle:ZONE[:STATE].

Related Command

This command has the same function as the following command.
:CALCulate:MARKer:COUPle:ZONE[:STATE]

:CALCulate:SPURious:MARKer:COUPle[:STATE]?
Spurious Emission Couple Zone Query

Function

This command queries On/Off of the function that the value is automatically set to Zone Width in each marker.
Refer to
:CALCulate:MARKer:COUPle:ZONE[:STATE]?.

Related Command

This command has the same function as the following command.
:CALCulate:MARKer:COUPle:ZONE[:STATE]?
2.14 Spurious Emission Measurement Function

:INITiate:SPURious:PAUSE:CONTinue

Spurious Emission Continue

Function

Pause is cancelled and measurement will continue when this command is sent while it is in remote control state and paused.

Command

:INITiate:SPURious:PAUSE:CONTinue

Details

It will pause before the pertinent segment is swept when Pause before Sweep is set to On. This command is used to cancel the pause and continue the measurement.

This command can only be used while it is in remote control state and paused. Pause is cancelled and measurement will stop when this command is sent while it is in local status. Press the F1 [Continue] key to continue the measurement while it is in local status.

To read out the measurement results after executing this command, perform the synchronization control using the “*WAI” command.

Example of Use

Measurement method when pausing twice

INIT:SPUR  Measure until paused
*WAI  Wait until paused
INIT:SPUR:PAUSE:CONT  Cancel the pause, and continue the measurement
*WAI  Wait until paused
INIT:SPUR:PAUSE:CONT  Cancel the pause, and continue the measurement
*WAI  Wait until the measurement is completed
FETC:SPUR?  Read the measurement results
> 1,1,9282.00,-84.38,71.38,...
:INITiate:SPURious:PAUSE:STATe?
Spurious Emission Pause Status Query

Function
This command queries whether the Spurious Emission measurement is in remote control state and paused or not.

Query
:INITiate:SPURious:PAUSE:STATe?

Response
<switch>

Parameter
<switch> Status of the Spurious Emission measurement
1 Remote control state and paused
0 All other status

Details
It pauses before the pertinent segment is swept when Pause before Sweep is set to On. This command is used to query if it is paused or not.

This command can only be used while it is in remote control state. Pause is cancelled and measurement will stop when this command is sent while it is in local status.

Example of Use
To query whether it is in remote control state and paused or not.
INIT:SPUR:PAUS:STAT?
> 0
2.14 Spurious Emission Measurement Function

[:SENSe]:SPURious:SYNThesis:LPHase ON|OFF|1|0
Low Phase Noise for Spurious Emission Measurement

Function
This command enables/disables Low Phase Noise function during Spurious Emission measurement.

Command
[:SENSe]:SPURious:SYNThesis:LPHase <switch>

Parameter

<table>
<thead>
<tr>
<th>&lt;switch&gt;</th>
<th>Low Phase Noise switch</th>
</tr>
</thead>
<tbody>
<tr>
<td>ON</td>
<td>1</td>
</tr>
<tr>
<td>OFF</td>
<td>0</td>
</tr>
<tr>
<td>Default</td>
<td>Off</td>
</tr>
</tbody>
</table>

Details
This function is available when MS2830A-062/066, MS2840A-066/166 is installed.
This function does not depend on the setting of the Low Phase Noise switch at System Config. The setting-enabled conditions are as follows:

<table>
<thead>
<tr>
<th>Function status</th>
<th>System Config Low Phase Noise switch status</th>
<th>Low Phase Noise switch status</th>
</tr>
</thead>
<tbody>
<tr>
<td>On</td>
<td>On</td>
<td>Enables the Low Phase Noise function during Spurious Emission measurement.</td>
</tr>
<tr>
<td></td>
<td>Off</td>
<td></td>
</tr>
<tr>
<td>Off</td>
<td>On</td>
<td>Enables the Low Phase Noise function during Spurious Emission measurement.</td>
</tr>
<tr>
<td></td>
<td>Off</td>
<td></td>
</tr>
</tbody>
</table>

The status at other than spurious emission measurement is reflected by the System Config switch.

Example of Use
To enable the Low Phase Noise function during Spurious Emission measurement.
SPUR:SYNT:LPH ON
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[:SENSe]:SPURious:SYNThesis:LPHase?
Low Phase Noise for Spurious Emission Measurement Query

Function

This command queries the Low Phase Noise function On/Off state during Spurious Emission measurement.

Query

[:SENSe]:SPURious:SYNThesis:LPHase?

Response

<switch>  Low Phase Noise switch

Parameter

<switch>  Low Phase Noise switch
1  Low Phase Noise switch enabled.
0  Low Phase Noise switch disabled.

Details

This function is available when MS2830A-062/066, MS2840A-066/166 is installed.

This function does not depend on the setting of Low Phase Noise Converter at Config. The setting-enabled conditions are as follows:

<table>
<thead>
<tr>
<th>Function status</th>
<th>System Config Low Phase Noise switch status</th>
<th>Low Phase Noise switch status</th>
</tr>
</thead>
<tbody>
<tr>
<td>On</td>
<td>On</td>
<td>Enables the Low Phase Noise function during Spurious Emission measurement.</td>
</tr>
<tr>
<td></td>
<td>Off</td>
<td></td>
</tr>
<tr>
<td>Off</td>
<td>On</td>
<td>Disables the Low Phase Noise function during Spurious Emission measurement.</td>
</tr>
<tr>
<td></td>
<td>Off</td>
<td></td>
</tr>
</tbody>
</table>

The status at other than spurious emission measurement is reflected by the Config switch.

The phase noise characteristics can be improved using the Low Phase Noise Function when the Low Phase Noise switch is On, the frequency range is $f \leq 3.7$ GHz ($f < 3.5$ GHz when Frequency Band Mode is Spurious) and the Span Frequency is less than 1 MHz.

However, if a signal outside the DUT frequency range is input while using the Low Phase Noise Function, it may be possible to measure spurious noise generated within the unit.
2.14 Spurious Emission Measurement Function

Refer to the mainframe Operation Manual (Operation) for details about spurious noise generation and appropriate conditions for using the Low Phase Noise Function.

Example of Use

To query the On/Off state of Low Phase Noise function during Spurious Emission measurement.

```
SPUR:SYNT:LPH?
> 1
```
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[:SENSe]:FREQuency:SYNThesis:LPHase:STATe?
Low Phase Noise Status Query

Function

This command queries the state of Low Phase Noise function with the current measurement conditions.

Query

[:SENSe]:FREQuency:SYNThesis:LPHase:STATe?

Response

<status>  
Low Phase Noise function On/Off state

Parameter

<status>  
Low Phase Noise function On/Off state

1  Uses Low Phase Noise function.

0  Do not use Low Phase Noise function.

Details

This function is available when MS2830A-062/066, MS2840A-066/166 is installed.

The phase noise characteristics can be improved using the Low Phase Noise Function when the Low Phase Noise switch is On, the frequency range is \(-20 \text{ MHz} \leq f \leq 3.7 \text{ GHz}\) \((-20 \text{ MHz} \leq f < 3.5 \text{ GHz}\) when Frequency Band Mode is Spurious\) and the Span Frequency is less than 1 MHz.

However, if a signal outside the DUT frequency range is input while using the Low Phase Noise Function, it may be possible to measure spurious noise generated within the unit.

Refer to the mainframe Operation Manual (Operation) for details about spurious noise generation and appropriate conditions for using the Low Phase Noise Function.

Example of Use

To query the state of Low Phase Noise function with the current measurement conditions.

FREQ:SYNT:LPH:STAT?
> 1
### 2.15 Setting the TOI Measurement Functions

Table 2.15-1 lists device messages for setting the TOI (Third Order Intercept) measurement functions.

<table>
<thead>
<tr>
<th>Function</th>
<th>Device Message</th>
</tr>
</thead>
<tbody>
<tr>
<td>Measure TOI</td>
<td>[:SENSe]:TOI[:STATe] ON</td>
</tr>
<tr>
<td></td>
<td>[:SENSe]:TOI[:STATe]?</td>
</tr>
<tr>
<td></td>
<td>:CALCulate:TOI[:STATe] ON</td>
</tr>
<tr>
<td></td>
<td>:CALCulate:TOI[:STATe]?</td>
</tr>
<tr>
<td>TOI Frequency Auto Tune</td>
<td>[:SENSe]:TOI:FREQuency:TUNE:IMMediate</td>
</tr>
<tr>
<td>TOI Lower Tone Frequency</td>
<td>[:SENSe]:TOI:FREQuency:BASE:LOWer &lt;freq&gt;</td>
</tr>
<tr>
<td></td>
<td>[:SENSe]:TOI:FREQuency:BASE:LOWer?</td>
</tr>
<tr>
<td></td>
<td>:CALCulate:TOI:FREQuency:BASE:LOWer &lt;freq&gt;</td>
</tr>
<tr>
<td></td>
<td>:CALCulate:TOI:FREQuency:BASE:LOWer?</td>
</tr>
<tr>
<td>TOI Upper Tone Frequency</td>
<td>[:SENSe]:TOI:FREQuency:BASE:UPPer &lt;freq&gt;</td>
</tr>
<tr>
<td></td>
<td>[:SENSe]:TOI:FREQuency:BASE:UPPer?</td>
</tr>
<tr>
<td></td>
<td>:CALCulate:TOI:FREQuency:BASE:UPPer &lt;freq&gt;</td>
</tr>
<tr>
<td></td>
<td>:CALCulate:TOI:FREQuency:BASE:UPPer?</td>
</tr>
<tr>
<td>TOI Tone Frequency Auto/Manual</td>
<td>[:SENSe]:TOI:FREQuency:BASE[:LOWer[:UPPer]]:AUTO ON</td>
</tr>
<tr>
<td></td>
<td>[:SENSe]:TOI:FREQuency:BASE[:LOWer[:UPPer]]:AUTO?</td>
</tr>
<tr>
<td></td>
<td>:CALCulate:TOI:FREQuency:BASE[:LOWer[:UPPer]]:AUTO ON</td>
</tr>
<tr>
<td></td>
<td>:CALCulate:TOI:FREQuency:BASE[:LOWer[:UPPer]]:AUTO?</td>
</tr>
<tr>
<td>TOI Zero Span Measurement On/Off</td>
<td>[:SENSe]:TOI:ZSPan[:STATe] ON</td>
</tr>
<tr>
<td></td>
<td>[:SENSe]:TOI:ZSPan[:STATe]?</td>
</tr>
<tr>
<td>TOI Zero Span Measurement Resolution</td>
<td>[:SENSe]:TOI:ZSPan:BANDwidth</td>
</tr>
<tr>
<td>Bandwidth</td>
<td>[:SENSe]:TOI:ZSPan:BANDwidth</td>
</tr>
<tr>
<td>TOI Zero Span Measurement Resolution</td>
<td>[:SENSe]:TOI:ZSPan:BANDwidth</td>
</tr>
<tr>
<td>Bandwidth Auto/Manual</td>
<td>[:SENSe]:TOI:ZSPan:BANDwidth</td>
</tr>
<tr>
<td>TOI Zero Span Sweep Time</td>
<td>[:SENSe]:TOI:ZSPan:SWEep:TIME &lt;time&gt;</td>
</tr>
<tr>
<td></td>
<td>[:SENSe]:TOI:ZSPan:SWEep:TIME?</td>
</tr>
<tr>
<td>TOI Zero Span Measurement Sweep Time</td>
<td>[:SENSe]:TOI:ZSPan:SWEep:TIME:AUTO ON</td>
</tr>
<tr>
<td>Auto/Manual</td>
<td>[:SENSe]:TOI:ZSPan:SWEep:TIME:AUTO?</td>
</tr>
</tbody>
</table>
### Table 2.15-1  Device messages for setting the TOI measurement functions (Cont’d)

<table>
<thead>
<tr>
<th>Function</th>
<th>Device Message</th>
</tr>
</thead>
<tbody>
<tr>
<td>TOI 3rd Frequency Search On/Off</td>
<td>[:SENSe]:TOI:FREQuency:IM3:SEARch ON</td>
</tr>
<tr>
<td></td>
<td>[:SENSe]:TOI:FREQuency:IM3:SEARch?</td>
</tr>
<tr>
<td></td>
<td>:CALCulate:TOI:FREQuency:IM3:SEARch ON</td>
</tr>
<tr>
<td></td>
<td>:CALCulate:TOI:FREQuency:IM3:SEARch?</td>
</tr>
<tr>
<td>TOI Configure</td>
<td>:CONFigure:TOI</td>
</tr>
<tr>
<td>TOI Initiate</td>
<td>:INITiate:TOI</td>
</tr>
<tr>
<td>TOI Read Fetch</td>
<td>:FETCH:TOI[n]?</td>
</tr>
<tr>
<td>TOI Read</td>
<td>:READ:TOI[n]?</td>
</tr>
<tr>
<td>TOI Measure</td>
<td>:MEASURE:TOI[n]?</td>
</tr>
<tr>
<td>TOI Read Fetch IP3</td>
<td>:FETCH:TOI:IP3?</td>
</tr>
<tr>
<td>TOI Read IP3</td>
<td>:READ:TOI:IP3?</td>
</tr>
<tr>
<td>TOI Measure IP3</td>
<td>:MEASURE:TOI:IP3?</td>
</tr>
</tbody>
</table>
[:SENSe]:TOI[:STATe] ON|OFF|1|0

Measure TOI

Function

This command executes the TOI (Third Order Intercept) measurement.

Command

[:SENSe]:TOI[:STATe] <switch>

Parameter

<switch> Turns on and off the TOI measurement.
ON|1 Turns on the TOI measurement.
OFF|0 Turns off the TOI measurement. (Default)

Example of use

To turn on the TOI measurement.
TOI ON

Related Command

This command has the same function as the following command.
[:CALCulate:TOI[:STATe] <switch>

:CALCulate:TOI[:STATe] ON|OFF|1|0

Measure TOI

Function

This command executes the TOI measurement.
Refer to
[:SENSe]:TOI[:STATe] <switch>.

Related Command

This command has the same function as the following command.
[:SENSe]:TOI[:STATe] <switch>
Chapter 2  SCPI Device Message Details

[:SENSe]:TOI[:STATe]?  
Measure TOI Query

Function
This command queries whether the TOI measurement is on or off.

Query
[:SENSe]:TOI[:STATe]?

Response
<switch>

Parameter
<switch>  
<table>
<thead>
<tr>
<th>ON</th>
<th>1</th>
<th>ON</th>
</tr>
</thead>
<tbody>
<tr>
<td>OFF</td>
<td>0</td>
<td>OFF</td>
</tr>
</tbody>
</table>

Example of use
To query whether the TOI measurement is on or off.
TOI?
> 1

Related Command
This command has the same function as the following command.
[:SENSe]:TOI[:STATe]?

:CALCulate:TOI[:STATe]?

Measure TOI Query

Function
This command queries whether the TOI measurement is on or off.
Refer to
[:SENSe]:TOI[:STATe]?

Related Command
This command has the same function as the following command.
[:SENSe]:TOI[:STATe]?
### [:SENSe]:TOI:FREQuency:TUNE:IMMediate

**TOI Frequency Auto Tune**

**Function**

This command executes the Auto Tune of the TOI measurement.

**Command**

```plaintext
[:SENSe]:TOI:FREQuency:TUNE:IMMediate
```

**Example of Use**

To execute the Auto Tune of the TOI measurement.

```plaintext
TOI:FREQ:TUNE:IMM
```

### [:SENSe]:TOI:FREQuency:BASE:LOWer <freq>

**TOI Lower Tone Frequency**

**Function**

This command sets the lower tone frequency for the TOI measurement.

**Command**

```plaintext
[:SENSe]:TOI:FREQuency:BASE:LOWer <freq>
```

**Parameter**

<table>
<thead>
<tr>
<th>&lt;freq&gt;</th>
<th>Lower tone frequency for the TOI measurement</th>
</tr>
</thead>
<tbody>
<tr>
<td><strong>Range</strong></td>
<td></td>
</tr>
<tr>
<td>[MS269xA]</td>
<td>-100 MHz to 6.05 GHz (MS2690A)</td>
</tr>
<tr>
<td></td>
<td>-100 MHz to 13.6 GHz (MS2691A)</td>
</tr>
<tr>
<td></td>
<td>-100 MHz to 26.6 GHz (MS2692A)</td>
</tr>
<tr>
<td>[MS2830A]</td>
<td>-100 MHz to 3.7 GHz (Option 040)</td>
</tr>
<tr>
<td></td>
<td>-100 MHz to 6.1 GHz (Option 041)</td>
</tr>
<tr>
<td></td>
<td>-100 MHz to 13.6 GHz (Option 043)</td>
</tr>
<tr>
<td></td>
<td>-100 MHz to 26.6 GHz (Option 044)</td>
</tr>
<tr>
<td></td>
<td>-100 MHz to 43.1 GHz (Option 045)</td>
</tr>
<tr>
<td>[MS2840A]</td>
<td>-100 MHz to 3.7 GHz (Option 040)</td>
</tr>
<tr>
<td></td>
<td>-100 MHz to 6.1 GHz (Option 041)</td>
</tr>
<tr>
<td></td>
<td>-100 MHz to 26.6 GHz (Option 044)</td>
</tr>
<tr>
<td></td>
<td>-100 MHz to 44.6 GHz (Option 046)</td>
</tr>
<tr>
<td>[MS2850A]</td>
<td>-100 MHz to 32.5 GHz (Option 047)</td>
</tr>
<tr>
<td></td>
<td>-100 MHz to 45 GHz (Option 046)</td>
</tr>
<tr>
<td>Resolution</td>
<td>1 Hz</td>
</tr>
<tr>
<td>Suffix code</td>
<td>HZ, KHZ, KZ, MHZ, MZ, GHZ, GZ</td>
</tr>
<tr>
<td>Default</td>
<td>Hz is used when omitted.</td>
</tr>
<tr>
<td>[MS269xA]</td>
<td>2.25 GHz (MS2690A)</td>
</tr>
</tbody>
</table>
Chapter 2  SCPI Device Message Details

Example of Use

To set the lower tone frequency to 1 GHz.

TOI:FREQ:BASE:LOW 1GHZ

Related Command

This command has the same function as the following command.

:CALCulate:TOI:FREQuency:BASE:LOWer <freq>

:CALCulate:TOI:FREQuency:BASE:LOWer <freq>
TOI Lower Tone Frequency

Function

This command sets the lower tone frequency for the TOI measurement. Refer to

[:SENSe]:TOI:FREQuency:BASE:LOWer <freq>.

Related Command

This command has the same function as the following command.

[:SENSe]:TOI:FREQuency:BASE:LOWer <freq>

[:SENSe]:TOI:FREQuency:BASE:LOWer?
TOI Lower Tone Frequency Query

Function

This command queries the lower tone frequency for the TOI measurement.

Query

[:SENSe]:TOI:FREQuency:BASE:LOWer?
2.15 Setting the TOI Measurement Functions

Response

Parameter

Example of Use

Related Command

:CALCulate:TOI:FREQuency:BASE:LOWer?

TOI Lower Tone Frequency Query

Function

This command queries the lower tone frequency for the TOI measurement.

Refer to

[SENSe]:TOI:FREQuency:BASE:LOWer <freq>.

Related Command

This command has the same function as the following command.

[SENSe]:TOI:FREQuency:BASE:LOWer?
[:SENSe]:TOI:FREQuency:BASE:UPPer <freq>

TOI Upper Tone Frequency

Function

This command sets the upper tone frequency for the TOI measurement.

Command

[:SENSe]:TOI:FREQuency:BASE:UPPer <freq>

Parameter

- **<freq>**: Upper tone frequency for the TOI measurement

<table>
<thead>
<tr>
<th>Range</th>
<th>Default</th>
</tr>
</thead>
<tbody>
<tr>
<td>[MS269xA]</td>
<td></td>
</tr>
<tr>
<td>-100 MHz to 6.05 GHz</td>
<td>3.75 GHz (MS2690A)</td>
</tr>
<tr>
<td>-100 MHz to 13.6 GHz</td>
<td>8.4375 GHz (MS2691A)</td>
</tr>
<tr>
<td>-100 MHz to 26.6 GHz</td>
<td>16.5625 GHz (MS2692A)</td>
</tr>
<tr>
<td>[MS2830A]</td>
<td></td>
</tr>
<tr>
<td>-100 MHz to 3.7 GHz</td>
<td>1.875 GHz (Option 040)</td>
</tr>
<tr>
<td>-100 MHz to 6.1 GHz</td>
<td>3.75 GHz (Option 041)</td>
</tr>
<tr>
<td>-100 MHz to 13.6 GHz</td>
<td>8.4375 GHz (Option 043)</td>
</tr>
<tr>
<td>-100 MHz to 26.6 GHz</td>
<td>16.5625 GHz (Option 044)</td>
</tr>
<tr>
<td>-100 MHz to 43.1 GHz</td>
<td>26.875 GHz (Option 045)</td>
</tr>
<tr>
<td>[MS2840A]</td>
<td></td>
</tr>
<tr>
<td>-100 MHz to 3.7 GHz</td>
<td>1.875 GHz (Option 040)</td>
</tr>
<tr>
<td>-100 MHz to 6.1 GHz</td>
<td>3.75 GHz (Option 041)</td>
</tr>
<tr>
<td>-100 MHz to 26.6 GHz</td>
<td>16.5625 GHz (Option 044)</td>
</tr>
<tr>
<td>-100 MHz to 44.6 GHz</td>
<td>26.875 GHz (Option 046)</td>
</tr>
<tr>
<td>[MS2850A]</td>
<td></td>
</tr>
<tr>
<td>-100 MHz to 32.5 GHz</td>
<td>20.0 GHz (Option 047)</td>
</tr>
<tr>
<td>-100 MHz to 45 GHz</td>
<td>26.875 GHz (Option 046)</td>
</tr>
</tbody>
</table>

Resolution: 1 Hz

Suffix code: HZ, KHZ, KZ, MHZ, MZ, GHZ, GZ

Hz is used when omitted.

Example of Use
2.15 Setting the TOI Measurement Functions

To set the upper tone frequency to 2 GHz.

```
TOI:FREQ:BASE:UPP 2GHZ
```

**Related Command**

This command has the same function as the following command.

```
:CALCulate:TOI:FREQuency:BASE:UPPer <freq>
```

**:CALCulate:TOI:FREQuency:BASE:UPPer <freq>**

TOI Upper Tone Frequency

**Function**

This command sets the upper tone frequency for the TOI measurement. Refer to

```
[:SENSe]:TOI:FREQuency:BASE:UPPer <freq>.
```

**Related Command**

This command has the same function as the following command.

```
[:SENSe]:TOI:FREQuency:BASE:UPPer <freq>
```

**[:SENSe]:TOI:FREQuency:BASE:UPPer?**

TOI Upper Tone Frequency Query

**Function**

This command queries the upper tone frequency for the TOI measurement.

**Query**

```
[:SENSe]:TOI:FREQuency:BASE:UPPer?
```

**Response**

```
<freq>
```

**Parameter**

```
<freq>  Upper tone frequency for the TOI measurement
```

**Range**

<table>
<thead>
<tr>
<th>Model</th>
<th>Range</th>
</tr>
</thead>
<tbody>
<tr>
<td>MS269xA</td>
<td>-100 MHz to 6.05 GHz (MS2690A)</td>
</tr>
<tr>
<td></td>
<td>-100 MHz to 13.6 GHz (MS2691A)</td>
</tr>
<tr>
<td></td>
<td>-100 MHz to 26.6 GHz (MS2692A)</td>
</tr>
<tr>
<td>MS2830A</td>
<td>-100 MHz to 3.7 GHz (Option 040)</td>
</tr>
<tr>
<td></td>
<td>-100 MHz to 6.1 GHz (Option 041)</td>
</tr>
<tr>
<td></td>
<td>-100 MHz to 13.6 GHz (Option 043)</td>
</tr>
<tr>
<td></td>
<td>-100 MHz to 26.6 GHz (Option 044)</td>
</tr>
<tr>
<td></td>
<td>-100 MHz to 43.1 GHz (Option 045)</td>
</tr>
<tr>
<td>MS2840A</td>
<td>-100 MHz to 3.7 GHz (Option 040)</td>
</tr>
<tr>
<td></td>
<td>-100 MHz to 6.1 GHz (Option 041)</td>
</tr>
<tr>
<td></td>
<td>-100 MHz to 26.6 GHz (Option 044)</td>
</tr>
<tr>
<td></td>
<td>-100 MHz to 44.6 GHz (Option 046)</td>
</tr>
</tbody>
</table>
### [MS2850A]
- 100 MHz to 32.5 GHz (Option 047)
- 100 MHz to 45 GHz (Option 046)

<table>
<thead>
<tr>
<th>Resolution</th>
<th>1 Hz</th>
</tr>
</thead>
<tbody>
<tr>
<td>Suffix code</td>
<td>None. Value is returned in Hz units.</td>
</tr>
</tbody>
</table>

#### Example of Use

To query the upper tone frequency.

```
TOI:FREQ:BASE:UPP?
> 2000000000
```

#### Related Command

This command has the same function as the following command.

```
:CALCulate:TOI:FREQuency:BASE:UPPer?
```

### :CALCulate:TOI:FREQuency:BASE:UPPer?

**TOI Upper Tone Frequency Query**

**Function**

This command queries the upper tone frequency for the TOI measurement.

Refer to

```
[:SENSe]:TOI:FREQuency:BASE:UPPer <freq>.
```

**Related Command**

This command has the same function as the following command.

```
[:SENSe]:TOI:FREQuency:BASE:UPPer?
```
2.15 Setting the TOI Measurement Functions

[:SENSe]:TOI:FREQuency:BASE[:LOWer[:UPPer]]:AUTO ON|OFF|1|0
TOI Tone Frequency Auto/Manual

Function

This command turns on and off the automatic setting of the tone frequency for the TOI measurement.

Command

[:SENSe]:TOI:FREQuency:BASE[:LOWer[:UPPer]]:AUTO <switch>

Parameter

<switch>  Automatic setting of the frequency for the TOI measurement
ON|1  Turns on the automatic setting of the frequency for the TOI measurement. (Default)
OFF|0  Turns off the automatic setting of the frequency for the TOI measurement.

Example of Use

To automatically set the tone frequency.
TOI:FREQ:BASE:AUTO ON

Related Command

This command has the same function as the following command.
[:CALCulate]:TOI:FREQuency:BASE[:LOWer[:UPPer]]:AUTO ON|OFF|1|0

[:CALCulate]:TOI:FREQuency:BASE[:LOWer[:UPPer]]:AUTO ON|OFF|1|0
TOI Tone Frequency Auto/Manual

Function

This command turns on and off the automatic setting of the tone frequency for the TOI measurement.

Refer to
[:SENSe]:TOI:FREQuency:BASE[:LOWer[:UPPer]]:AUTO <switch>.

Related Command

This command has the same function as the following command.
[:SENSe]:TOI:FREQuency:BASE[:LOWer[:UPPer]]:AUTO <switch>
[:SENSe]:TOI:FREQuency:BASE[:LOWer[:UPPer]]:AUTO?
TOI Tone Frequency Auto/Manual Query

Function
This command queries whether the automatic setting of the tone frequency for the TOI measurement is on or off.

Query
[:SENSe]:TOI:FREQuency:BASE[:LOWer[:UPPer]]:AUTO?

Response
<switch>

Parameter
<switch>  Automatic setting of the frequency for the TOI measurement ON/OFF
ON|1  ON
OFF|0  OFF

Example of Use
To query whether the automatic setting of the tone frequency for the TOI measurement is on or off.
TOI:FREQ:BASE:AUTO?
> 1

Related Command
This command has the same function as the following command.
:CALCulate:TOI:FREQuency:BASE[:LOWer[:UPPer]]:AUTO?
2.15 Setting the TOI Measurement Functions

:CALCulate:TOI:FREQuency:BASE[:LOWer[:UPPer]]:AUTO?
TOI Tone Frequency Auto/Manual Query

Function
This command queries whether the automatic setting of the tone frequency for the TOI measurement is on or off.
Refer to
[:SENSe]:TOI:FREQuency:BASE[:LOWer[:UPPer]]:AUTO?

Related Command
This command has the same function as the following command.
[:SENSe]:TOI:FREQuency:BASE[:LOWer[:UPPer]]:AUTO?

[:SENSe]:TOI:ZSPan[:STATe] ON|OFF|1|0
TOI Zero Span Measurement On/Off

Function
This command turns on and off the Zero Span Measurement in the TOI measurement.

Command
[:SENSe]:TOI:ZSPan[:STATe] <switch>

Parameter

<table>
<thead>
<tr>
<th>&lt;switch&gt;</th>
<th>Setting of the Zero Span Measurement in the TOI measurement</th>
</tr>
</thead>
<tbody>
<tr>
<td>ON</td>
<td>1</td>
</tr>
<tr>
<td>OFF</td>
<td>0</td>
</tr>
</tbody>
</table>

Example of Use
To turn on the Zero Span Measurement.
TOI:ZSP ON
[:SENSe]:TOI:ZSPan[:STATe]?  
TOI Zero Span Measurement On/Off Query

**Function**

This command queries whether the Zero Span Measurement in the TOI measurement is on or off.

**Query**

[:SENSe]:TOI:ZSPan[:STATe]? <switch>

**Response**

<switch>

**Parameter**

<switch>  
Turns on and off the Zero Span Measurement in the TOI measurement.  
ON|1    
Turns on the Zero Span Measurement.  
OFF|0    
Turns off the Zero Span Measurement.

**Example of Use**

To query whether the Zero Span Measurement is turned on or off.

TOI:ZSP?

> 1
[:SENSe]:TOI:ZSPan:BANDwidth|BWIDth[:RESolution] <freq>
TOI Zero Span Measurement Resolution Bandwidth

Function
This command sets the resolution bandwidth for the Zero Span Measurement in the TOI measurement.

Command
[:SENSe]:TOI:ZSPan:BANDwidth|BWIDth[:RESolution] <freq>

Parameter

<freq> Resolution bandwidth for the Zero Span Measurement in the TOI measurement

[MS269xA]
Range/Resolution 30 Hz to 31.25 MHz
Set to any of 30 Hz to 3 MHz (1-3 sequence), 50 kHz, 5 MHz, 10 MHz, 20 MHz, and 31.25 MHz.

[MS2830A], [MS2840A]
Range/Resolution 30 Hz to 31.25 MHz
Set to any of 30 Hz to 3 MHz (1-3 sequence), 500 Hz, 50 kHz, 2 MHz, 5 MHz, 10 MHz, 20 MHz or 31.25 MHz.

[MS2850A]
Range/Resolution 30 Hz to 10.00 MHz
Set to any of 30 Hz to 3 MHz (1-3 sequence), 500 Hz, 50 kHz, 2 MHz, 5 MHz, and 10 MHz.

[Common]
Suffix code HZ, KHZ, KZ, MHZ, MZ, GHZ, GZ
Hz is used when omitted.
Default Value set in RBW Auto

Example of Use
To set the resolution bandwidth for the Zero Span Measurement.
TOI:ZSP:BAND 1MHZ
[:SENSe]:TOI:ZSPan:BANDwidth|BWIDth[:RESolution]?  
TOI Zero Span Measurement Resolution Bandwidth Query

**Function**

This command queries the resolution bandwidth for the Zero Span Measurement in the TOI measurement.

**Query**

[:SENSe]:TOI:ZSPan:BANDwidth|BWIDth[:RESolution]?

**Response**

<freq>

**Parameter**

<freq>  
Resolution bandwidth for the Zero Span Measurement in the TOI measurement

**[MS269xA]**

Range/Resolution  
30 Hz to 31.25 MHz  
Value is returned in any of 30 Hz to 3 MHz (1-3 sequence), 50 kHz, 5 MHz, 10 MHz, 20 MHz, and 31.25 MHz.

**[MS2830A], [MS2840A]**

Range/Resolution  
30 Hz to 31.25 MHz  
Value is returned in any of 30 Hz to 3 MHz (1-3 sequence), 500 Hz, 50 kHz, 2 MHz, 5 MHz, 10 MHz, 20 MHz or 31.25 MHz.

**[MS2850A]**

Range/Resolution  
30 Hz to 10.00 MHz  
Set to any of 30 Hz to 3 MHz (1-3 sequence), 500 Hz, 50 kHz, 2 MHz, 5 MHz, and 10 MHz.

**[Common]**

Suffix code  
None. Value is returned in Hz units.

**Example of Use**

To query the resolution bandwidth for the Zero Span Measurement.

TOI:ZSP:BAND?

> 1000000
Setting the TOI Measurement Functions

[:SENSe]:TOI:ZSPan:BANDwidth|BWIDth[:RESolution]:AUTO ON|OFF|1|0
TOI Zero Span Measurement Resolution Bandwidth Auto/Manual

Function

This command turns on and off the automatic setting of the resolution bandwidth for the Zero Span Measurement in the TOI measurement.

Command

[:SENSe]:TOI:ZSPan:BANDwidth|BWIDth[:RESolution]:AUTO
<switch>

Parameter

<switch> Automatic setting of the resolution bandwidth for the Zero Span Measurement in the TOI measurement
ON|1 Turns on the automatic setting of the resolution bandwidth for the Zero Span Measurement in the TOI measurement. (Default)
OFF|0 Turns off the automatic setting of the resolution bandwidth for the Zero Span Measurement in the TOI measurement.

Example of Use

To automatically set the resolution bandwidth for the Zero Span Measurement in the TOI measurement.
TOI:ZSP:BAND:_AUTO ON
[:SENSe]:TOI:ZSPan:BANDwidth|BWIDth[::RESolution]:AUTO?
TOI Zero Span Measurement Resolution Bandwidth Auto/Manual Query

Function

This command queries whether the automatic setting of the resolution bandwidth for the Zero Span Measurement in the TOI measurement is on or off.

Query

[:SENSe]:TOI:ZSPan:BANDwidth|BWIDth[::RESolution]:AUTO?

Response

<switch>

Parameter

<switch>  
Automatic setting of the resolution bandwidth for the Zero Span Measurement in the TOI measurement

ON|1  
Turns on the automatic setting of the resolution bandwidth for the Zero Span Measurement in the TOI measurement.

OFF|0  
Turns off the automatic setting of the resolution bandwidth for the Zero Span Measurement in the TOI measurement.

Example of Use

To query whether the automatic setting of the resolution bandwidth for the Zero Span Measurement in the TOI measurement is on or off.

TOI:ZSP:BAND:AUTO?

> 1
[:SENSe]:TOI:ZSPan:SWEep:TIME <time>
TOI Zero Span Measurement Sweep Time

**Function**

This command sets the sweep time for the Zero Span Measurement in the TOI measurement.

**Command**

[:SENSe]:TOI:ZSPan:SWEep:TIME <time>

**Parameter**

<table>
<thead>
<tr>
<th>Parameter</th>
<th>Description</th>
</tr>
</thead>
<tbody>
<tr>
<td>&lt;time&gt;</td>
<td>Sweep time of Zero Span Measurement in the TOI measurement.</td>
</tr>
<tr>
<td>Range</td>
<td>1 µs to 1000 s</td>
</tr>
<tr>
<td>Suffix code</td>
<td>NS,US,MS,S</td>
</tr>
</tbody>
</table>

S is used when the suffix code is omitted.

**Default**

- **[MS269xA]**
  - 10 ms (MS2690A)
  - 135 ms (MS2691A)
  - 265 ms (MS2692A)

- **[MS2830A]**
  - 1 ms (Option 040)
  - 2 ms (Option 041)
  - 4 ms (Option 043)
  - 89 ms (Option 044)
  - 86 ms (Option 045)

- **[MS2840A]**
  - 1 ms (Option 040)
  - 2 ms (Option 041)
  - 89 ms (Option 044)
  - 86 ms (Option 046)

- **[MS2850A]**
  - 107 ms (Option 047)
  - 149 ms (Option 046)

**Example of Use**

To set the sweep time for the Zero Span Measurement.

TOI:ZSP:SWE:TIME 0.1
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[:SENSe]:TOI:ZSPan:SWEep:TIME?
TOI Zero Span Measurement Sweep Time Query

Function

This command queries the sweep time for the Zero Span Measurement in the TOI measurement.

Query

[:SENSe]:TOI:ZSPan:SWEep:TIME?

Response

<time>

Parameter

<time>  Sweep time for the Zero Span Measurement in the TOI measurement.

Range  1 µs to 1000 s

Suffix code  None. Value is returned in s units.

Example of Use

To query the sweep time for the Zero Span Measurement.

TOI:ZSP:SWE:TIME?

> 0.1
2.15 Setting the TOI Measurement Functions

`:SENSe]:TOI:ZSPan:SWEep:TIME:AUTO ON|OFF|1|0
TOI Zero Span Measurement Sweep Time Auto/Manual

Function

This command turns on and off the automatic setting of the sweep time for the Zero Span Measurement in the TOI measurement.

Command

`:SENSe]:TOI:ZSPan:SWEep:TIME:AUTO <switch>

Parameter

<switch> Automatic setting of the sweep time for the Zero Span Measurement in the TOI measurement.

ON|1 Turns on the automatic setting of the sweep time for the Zero Span Measurement in the TOI measurement. (Default)

OFF|0 Turns off the automatic setting of the sweep time for the Zero Span Measurement in the TOI measurement.

Example of Use

To turn on the automatic setting of the sweep time for the Zero Span Measurement in the TOI measurement.

TOI:ZSP:SWE:TIME:AUTO ON
Chapter 2  SCPI Device Message Details

[:SENSe]:TOI:ZSPan:SWEep:TIME:AUTO?
TOI Zero Span Measurement Sweep Time Auto/Manual Query

Function
This command queries whether the automatic setting of the sweep time for the Zero Span Measurement in the TOI measurement is on or off.

Query
[:SENSe]:TOI:ZSPan:SWEep:TIME:AUTO?

Response
<switch>

Parameter
<switch>  Automatic setting of the sweep time for the Zero Span Measurement in the TOI measurement.
ON|1  Turns on the automatic setting of the sweep time for the Zero Span Measurement in the TOI measurement.
OFF|0  Turns off the automatic setting of the sweep time for the Zero Span Measurement in the TOI measurement.

Example of Use
To query whether the automatic setting of the sweep time for the Zero Span Measurement in the TOI measurement is on or off.
TOI:ZSP:SWE:TIME:AUTO?
> 1
[:SENSe]:TOI:FREQuency:IM3:SEARch ON|OFF|1|0
TOI 3rd Frequency Search On/Off

Function
This command turns on and off the search function for the third-order distortion frequency in the TOI measurement.

Command
[:SENSe]:TOI:FREQuency:IM3:SEARch <switch>

Parameter
<switch> Setting of the search function for the third-order distortion frequency in the TOI measurement
ON|1 Turns on the search function for the third-order distortion frequency.
OFF|0 Turns off the search function for the third-order distortion frequency. (Default)

Example of Use
To turn on the search function for the third-order distortion frequency.
TOI:FREQ:IM3:SEAR 1

Related Command
This command has the same function as the following command.
[:SENSe]:TOI:FREQuency:IM3:SEARch

:CALCulate:TOI:FREQuency:IM3:SEARch ON|OFF|1|0
TOI 3rd Frequency Search On/Off

Function
This command turns on and off the search function for the third-order distortion frequency in the TOI measurement.

Refer to
[:SENSe]:TOI:FREQuency:IM3:SEARch.

Related Command
This command has the same function as the following command.
[:SENSe]:TOI:FREQuency:IM3:SEARch
[:SENSe]:TOI:FREQuency:IM3:SEARch?
TOI 3rd Frequency Search On/Off

Function

This command queries whether the search function for the third-order distortion frequency in the TOI measurement is on or off.

Query

[:SENSe]:TOI:FREQuency:IM3:SEARch?

Response

<switch>

Parameter

<switch>

Setting of the search function for the third-order distortion frequency in the TOI measurement

ON|1

Turns on the search function for the third-order distortion frequency.

OFF|0

Turns off the search function for the third-order distortion frequency.

Example of Use

To query whether the search function for the third-order distortion frequency is on or off.
TOI:FREQuency:IM3:SEARch?
> 1

Related Command

This command has the same function as the following command.
[:CALCulate]:TOI:FREQuency:IM3:SEARch?

:CALCulate:TOI:FREQuency:IM3:SEARch?
TOI 3rd Frequency Correction On/Off

Function

This command queries whether the search function for the third-order distortion frequency in the TOI measurement is on or off.
Refer to
[:SENSe]:TOI:FREQuency:IM3:SEARch?.

Related Command

This command has the same function as the following command.
[:SENSe]:TOI:FREQuency:IM3:SEARch?
2.15 Setting the TOI Measurement Functions

:CONFigure:TOI
TOI Configure

Function
This command turns on the TOI measurement.

Command
:CONFigure:TOI

Details
No measurement is made.

Example of Use
To turn on the TOI measurement.
CONF:TOI

:INITiate:TOI
TOI Initiate

Function
This command starts the TOI measurement.

Command
:INITiate:TOI

Details
When this function is executed, the TOI turns on and the measurement is started.
To read out the measurement results after executing this command, perform the synchronization control using the “*WAI” command.

Example of Use
To start the TOI measurement.
INIT:TOI
Chapter 2  SCPI Device Message Details

:FETCh:TOI[n]?
TOI Read Fetch

Function

This command outputs the measurement result of the TOI measurement.

Query

:FETCh:TOI[n]?

Response

<tracedata_1>,<tracedata_2>,...
(n=0)
<worst_toi>,<worst_toi_freq>,
<lower_toi>,<lower_3rd_freq>,
<upper_toi>,<upper_3rd_freq>,
(n=1)
<worst_toi_freq>,<worst_3rd_abs>,<worst_toi>,
<lower_tone_freq>,<lower_tone_abs>,
<upper_tone_freq>,<upper_tone_abs>,
<lower_3rd_freq>,<lower_3rd_abs>,<lower_toi>,
<upper_3rd_freq>,<upper_3rd_abs>,<upper_toi>,
<worst_3rd_rel>,<lower_3rd_rel>,<upper_3rd_rel>
(n=2)

Parameter

<worst_toi>  Worst value of TOI
<worst_toi_freq>  3rd tone frequency that became the worst value of TOI
<worst_3rd_abs>  Worst value of 3rd tone level
<lower_toi>  TOI of the lower frequency
<lower_3rd_freq>  Lower 3rd tone frequency
<lower_tone_freq>  Lower tone frequency
<lower_tone_abs>  Lower tone absolute level
<lower_3rd_abs>  Lower 3rd tone absolute level
<upper_toi>  TOI of the upper frequency
<upper_3rd_freq>  Upper 3rd tone frequency
<upper_tone_freq>  Upper tone frequency
<upper_tone_abs>  Upper tone absolute level
<upper_3rd_abs>  Upper 3rd tone absolute level
<worst_3rd_rel>  Worst value of 3rd tone relative level
<lower_3rd_abs>  Lower 3rd tone relative level
<upper_3rd_abs>  Upper 3rd tone relative level
2.15 Setting the TOI Measurement Functions

TOI and absolute level: No suffix code, in dBm units, 0.01 dB resolution (–999.0 is returned when there is an error or no measurement is performed.)

frequency: No suffix code, in Hz unit, 1 Hz resolution (–999999999999 is returned when there is an error or no measurement is performed.)

Details

This command outputs the result of the last performed TOI measurement. Because this function is not related to sweep, it can be used to output the results of a previously finished measurement in a different format. To retry the measurement by using the results of another sweep attempt, use the READ command.

Example of Use

To obtain the measurement result of the TOI measurement.
FETC:TOI1?
> 10.0,1000000000,10.0,1000000000,5.0,1004000000

:READ:TOI[n]?

TOI Read

Function

This command performs the TOI measurement and outputs the measurement result.
This command has the same function as the following commands executed in this order:
:INITiate:TOI
:*WAI
:FETCh:TOI[n]?
Chapter 2  SCPI Device Message Details

:MEASure:TOI[n]?
TOI Measure

Function
This command performs the TOI measurement and outputs the measurement result.
This command has the same function as the following commands executed in this order:
:CONFigure:TOI
:INITiate:TOI
:*WAI
:FETCh:TOI[n]?

:FETCh:TOI:IP3?
TOI Read Fetch IP3

Function
This command outputs the measurement result of the TOI measurement.

Query
:FETCh:TOI:IP3?

Response
<worst_toi>

Parameter
<worst_toi>  Worst value of TOI
No suffix code, in dB units, 0.01 dB resolution
(-999.0 is returned when there is an error and no measurement is performed.)

Details
This command outputs the result of the last performed TOI measurement.
Because this function is not related to sweep, it can be used to output the results of a previously finished measurement in a different format.
To retry the measurement by using the results of another sweep attempt, use the READ command.

Example of Use
To obtain the measurement result of the TOI measurement.
FETC:TOI:IP3?
> 10.0
2.15 Setting the TOI Measurement Functions

:READ:TOI:IP3?
TOI Read IP3

Function

This command performs the TOI measurement and outputs the measurement result.
This command has the same function as the following commands executed in this order:
:INITiate:TOI
:*WAI
:FETCh:TOI:IP3?

:MEASURE:TOI:IP3?
TOI Measure IP3

Function

This command performs the TOI measurement and outputs the measurement result.
This command has the same function as the following commands executed in this order:
:CONFigure:TOI
:INITiate:TOI
:*WAI
:FETCh:TOI:IP3?
2.16 Internal Signal Generator Control function

Table 2.16-1 lists device messages for setting the Internal Signal Generator Control function.

Table 2.16-1  Device messages for setting the Internal Signal Generator Control functions

<table>
<thead>
<tr>
<th>Function</th>
<th>Device Message</th>
</tr>
</thead>
<tbody>
<tr>
<td>Internal Signal Generator On/Off</td>
<td>:CALCulate:SGControl[:STATe] ON</td>
</tr>
<tr>
<td></td>
<td>:CALCulate:SGControl[:STATe]?</td>
</tr>
<tr>
<td>Internal Signal Generator Control SG Output Level</td>
<td>:CALCulate:SGControl:POWer &lt; numeric_value&gt;</td>
</tr>
<tr>
<td></td>
<td>:CALCulate:SGControl:POWer?</td>
</tr>
<tr>
<td>Internal Signal Generator Output On/Off</td>
<td>:OUTPut[:STATe] ON</td>
</tr>
<tr>
<td></td>
<td>:OUTPut[:STATe]?</td>
</tr>
</tbody>
</table>
**Internal Signal Generator Control function**

:CALCulate:SGControl[:STATE] ON|OFF|1|0

**Function**

This command enables/disables Internal Signal Generator Control function.

**Command**

:CALCulate:SGControl[:STATE] <switch>

**Parameter**

<switch>  
Internal Signal Generator Control function

ON|1  
Enables Internal Signal Generator Control function.

OFF|0  
Disables Internal Signal Generator Control function. (Default)

**Details**

This command is available only for MS2830A.

Available when the following option is installed
- 052/152/352  Internal Signal Generator Control Function
and one of the following is installed at the same time.
- 020/120  3.6GHz Vector Signal Generator
- 021/121  6GHz Vector Signal Generator
- 088/188  3.6GHz Analog Signal Generator

All traces are cleared when switching between On and Off.

This cannot be executed under the following conditions:
- When Scale Mode is Linear
- When the Measure function is On
- In Time Domain
- When the Trigger function is On
- When Gate Sweep is On
- When the Frequency Counter function is On
- When the level display unit is other than dBm

**Example of Use**

To enable the Internal Signal Generator Control function.

CALC:SNG ON
:CALCulate:SGControl[:STATE]?

Internal Signal Generator Control Query

Function

This command queries the On/Off state of Internal Signal Generator Control function.

Query

:CALCulate:SGControl[:STATE]?

Response

<switch>

Parameter

<switch> Internal Signal Generator Control function
On/Off

1 Internal Signal Generator Control function is enabled.

0 Internal Signal Generator Control function is disabled.

Details

This command is available only for MS2830A.

Example of Use

To query the On/Off state of Internal Signal Generator Control function.
CALC:SGC?
> 1
### Function

This command sets the SG output level when Internal Signal Generator Control measurement is executed.

### Command

`:CALCulate:SGControl:POWer`

### Parameter

<table>
<thead>
<tr>
<th>Parameter</th>
<th>Description</th>
</tr>
</thead>
<tbody>
<tr>
<td>&lt;numeric_value&gt;</td>
<td>SG output level</td>
</tr>
</tbody>
</table>

- **Range**
  - –40.00 to +20.00 dBm (Start Frequency > 25 MHz) (*)
  - –40.00 to +2.00 dBm (Start Frequency ≤ 25 MHz) (*)
  - –136.00 to +15.00 dBm (Start Frequency > 25 MHz) (**)
  - –136.00 to –3.00 dBm (Start Frequency ≤ 25 MHz) (**)

- **Resolution** 0.01 dB
- **Default** –40.00 dBm (*)
  - –136.00 dBm (**)

- **Suffix code** DBM, dBm is used even when omitted.

(*): without Option 022/122

(**): with Option 022/122

### Details

This command is available only for MS2830A.

This function is available when MS2830A-052/152/352 is installed.

### Example of Use

To set the SG output level to –30.00 dBm.

```
CALC:SGC:POW -30.00DBM
```
:CALCulate:SGControl:POWer?

Internal Signal Generator Control SG Output Level Query

Function

This command queries the SG output level.

Query

:CALCulate:SGControl:POWer?

Response

<numeric_value>

Parameter

<numeric_value>  SG output level

Range

−40.00 to +20.00 dBm (Start Frequency > 25 MHz) (*)
−40.00 to +2.00 dBm (Start Frequency ≤ 25 MHz) (*)
−136.00 to +15.00 dBm (Start Frequency > 25 MHz) (**)
−136.00 to −3.00 dBm (Start Frequency ≤ 25 MHz) (**)

Resolution 0.01 dB

Suffix code None, Value is returned in dBm units.

(*) without Option 022/122

(**) with Option 022/122

Details

This command is available only for MS2830A.

Example of Use

To query the SG output level.

CALC:SGC:POW?

> -30.00
Internal Signal Generator Output

Function

This command turns RF output On/Off in the Internal Signal Generator Control function.

Command

:OUTPut[:STATe] <switch>

Parameter

<switch> RF output On/Off
  ON|1 Turns on RF output.
  OFF|0 Turns off RF output. (Default)

Details

This command is available only for MS2830A.

This function is available when MS2830A-052/152/352 is installed.

When RF output is turned On, Internal Signal Generator Control is On.
When Internal Signal Generator Control is turned Off, RF output is Off.

Example of Use

To set the RF signal output to On.

OUTP ON
Chapter 2  SCPI Device Message Details

:OUTPut[:STATe]?
Internal Signal Generator Output Query

Function
This command queries the On/Off state of RF output in the Internal Signal Generator Control function.

Query
:OUTPut[:STATe]?

Response
<switch>

Parameter
<switch> RF output On/Off
1 RF output is On
0 RF output is Off

Details
This command is available only for MS2830A.

Example of Use
To query the On/Off state of RF output.
OUTP?
> 1
2.17 Configuring Batch Measurement Settings

Table 2.17-1 lists device messages for setting the Batch Measurement function.

<table>
<thead>
<tr>
<th>Function</th>
<th>Device Message</th>
</tr>
</thead>
<tbody>
<tr>
<td>Reloading Parameter List Files</td>
<td>:MMEMory:RELoad:BATCH [&lt;device&gt;]</td>
</tr>
<tr>
<td>Adjacent Channel Power Batch Measure</td>
<td>:MEASure:BATCh:ACP[n]? &lt;filename&gt;[,&lt;device&gt;]</td>
</tr>
<tr>
<td>Occupied Bandwidth Batch Measure</td>
<td>:MEASure:BATCh:OBWidth[n]? &lt;filename&gt;[,&lt;device&gt;]</td>
</tr>
<tr>
<td>Spectrum Emission Mask Batch Measure</td>
<td>:MEASure:BATCh:SEMask[n]? &lt;filename&gt;[,&lt;device&gt;]</td>
</tr>
<tr>
<td>Spurious Emission Batch Measure</td>
<td>:MEASure:BATCh:SPURious[n]? &lt;filename&gt;[,&lt;device&gt;]</td>
</tr>
<tr>
<td>Transmit Intermodulation Batch Measure</td>
<td>:MEASure:BATCh:IM? &lt;filename&gt;,&lt;spa_freq&gt;[,&lt;sg_freq&gt;[,&lt;device&gt;]]</td>
</tr>
<tr>
<td>Measure Power Adjust</td>
<td>:MEASure:POWadj? &lt;rbw&gt;,&lt;length&gt;,&lt;sg_start_level&gt;,&lt;sg_max_level&gt;,&lt;target&gt;,&lt;range&gt;[,&lt;frequency&gt;[,&lt;tracepoint&gt;[,&lt;count&gt;[,&lt;adjust_log&gt;[,&lt;sg_offset_switch&gt;]]]]]</td>
</tr>
</tbody>
</table>
Chapter 2  SCPI Device Message Details

:MEMory:RELoad:BATCh [<device>]
Reloading Parameter List Files

Function

This command reflects the changes made to the parameter list files of the specified drive.

Command

:MEMory:RELoad:BATCh [<device>]

Parameter

<device>  Drive name
A, B, D, E, F, ...
D drive is used when omitted.

Details

The parameter list files used for batch measurement are read in batch when the main unit is started up and during application loading. Therefore, even if the files are changed following startup (or following loading), the changes are not applied to the measurement. (Measurement is executed with the parameters before changes were made.) This command has the effect of applying the changes made to the parameter list files. The parameter list files as they exist at the moment this command is sent are used for subsequent batch measurements.

Place the parameter list files in the following folder on the specified drive.
<device>:\Anritsu Corporation\Signal Analyzer\User Data\Batch

This command supports updates of the parameter list files used for the following commands. To update the parameter list file of another application, first execute system change to that application, and then send the update command.
:MEASure:BATCh:ACP[n]?
:MEASure:BATCh:OBWidth[n]?
:MEASure:BATCh:SEM[n]?
:MEASure:BATCh:SPURious[n]?
:MEASure:BATCh:IM?
2.17 Configuring Batch Measurement Settings

:MEASure:BATCH:ACP[n]? <filename>[,<device>]

Adjacent Channel Power Batch Measure

Function

This command executes ACP measurement and outputs the result after the parameters described in the specified parameter list file have been set.

Query

:MEASure:BATCH:ACP[n]? <filename>[,<device>]

Response

The same value as for :MEASure:ACP[n]? is returned. Refer to :MEASure:ACP[n]?

Parameter

- **<filename>**
  - Parameter list file
  - Specify with any character string enclosed by double quotes (" ") or single quotes (' ').
- **<device>**
  - Drive name
  - A, B, D, E, F, ...
  - D drive is used when omitted.

Details

This command executes ACP measurement and outputs the result after the parameters described in the specified parameter list have been set. The return values of this function vary depending on the result mode. (cf. :SYSTem:RESut:MODE)

Place the parameter list files in the following folder on the specified drive.
<device>:\Anritsu Corporation\Signal Analyzer\User Data\Batch

If the parameter list file has been changed, the changes must be applied with the :MME_memory:RELoad:BATCH command. (cf. :MME_memory:RELoad:BATCH)

Example of Use

To acquire the measurement result of ACP measurement using the MyParam.xls parameter list file.

```
MEAS:BATC:ACP? "MyParam"
> 0.0,-72.130,0.0,-72.130,-1.270,-73.400,-0.570,-72.700,-0.780,-72.910,-1.030,-73.160,-999.0,-999.0,-999.0,-999.0
```
Parameter list format

Table 2.17-2 lists the parameter list example.

<table>
<thead>
<tr>
<th>Parameter</th>
<th>Value</th>
</tr>
</thead>
<tbody>
<tr>
<td>Trace Points</td>
<td>1001</td>
</tr>
<tr>
<td>Span Freq.</td>
<td>25000000</td>
</tr>
<tr>
<td>RBW Value</td>
<td>30kHz</td>
</tr>
<tr>
<td>Detection</td>
<td>RMS</td>
</tr>
<tr>
<td>Sweep Time Switch</td>
<td>Auto</td>
</tr>
<tr>
<td>Auto Sweep Time Select</td>
<td>Normal</td>
</tr>
<tr>
<td>ACP Reference</td>
<td>Carrier Select</td>
</tr>
<tr>
<td>ACP Carrier Number</td>
<td>1</td>
</tr>
<tr>
<td>ACP Carrier BW</td>
<td>4515000</td>
</tr>
<tr>
<td>ACP Carrier Spacing</td>
<td>5000000</td>
</tr>
<tr>
<td>ACP In Band Center</td>
<td>0</td>
</tr>
<tr>
<td>ACP In Band FilterType</td>
<td>Rect</td>
</tr>
<tr>
<td>ACP In Band Roll-off Factor</td>
<td>22</td>
</tr>
<tr>
<td>ACP Offset1 Value</td>
<td>5000000</td>
</tr>
<tr>
<td>ACP Offset2 Value</td>
<td>10000000</td>
</tr>
<tr>
<td>ACP Offset3 Value</td>
<td>15000000</td>
</tr>
<tr>
<td>ACP Offset1 Switch</td>
<td>On</td>
</tr>
<tr>
<td>ACP Offset2 Switch</td>
<td>Off</td>
</tr>
<tr>
<td>ACP Offset3 Switch</td>
<td>Off</td>
</tr>
</tbody>
</table>

<?xml version="1.0" encoding="UTF-8"?>
<SignalAnalyzerProject>
  <ProjectDefine>
    <Attribute Name="Type" Value="Application" />  
    <Attribute Name="Name" Value="Batch Parameter List" />  
    <Attribute Name="FileVersion" Value="1.0.0.0" />
  </ProjectDefine>
  <Params>
    <SystemTemplate>
      <Attribute Name="ListString" Value="ACP1" />
      <Attribute Name="CommandArg" Value="ACP1" />
      <Attribute Name="AcpDefault" Value="ACP1" />
    </SystemTemplate>
    <AcpParams Name="ACP1">
      <ParamDefine>
        <Attribute Name="ListString" Value="ACP1" />
        <Attribute Name="CommandArg" Value="ACP1" />
      </ParamDefine>
      <CommonParams>
        <Attribute Name="Trace Points" Value="1001" />
        <Attribute Name="Span Freq." Value="25000000" />
        <Attribute Name="RBW Value" Value="30kHz" />
        <Attribute Name="Detection" Value="RMS" />
        <Attribute Name="Sweep Time Switch" Value="Auto" />
        <Attribute Name="Auto Sweep Time Select" Value="Normal" />
        <Attribute Name="ACP Reference" Value="Carrier Select" />
        <Attribute Name="ACP Carrier Number" Value="1" />
        <Attribute Name="ACP Carrier BW" Value="4515000" />
        <Attribute Name="ACP Carrier Spacing" Value="5000000" />
        <Attribute Name="ACP In Band Center" Value="0" />
        <Attribute Name="ACP In Band FilterType" Value="Rect" />
        <Attribute Name="ACP In Band Roll-off Factor" Value="22" />
        <Attribute Name="ACP Offset1 Value" Value="5000000" />
        <Attribute Name="ACP Offset2 Value" Value="10000000" />
        <Attribute Name="ACP Offset3 Value" Value="15000000" />
        <Attribute Name="ACP Offset1 Switch" Value="On" />
        <Attribute Name="ACP Offset2 Switch" Value="On" />
        <Attribute Name="ACP Offset3 Switch" Value="Off" />
      </CommonParams>
    </AcpParams>
  </Params>
</SignalAnalyzerProject>
Table 2.17-2  Parameter List Example (ACP Measurement) (Cont’d)

```
<Attribute Name="ACP Oftset Ch Bw" Value="4515000" />
<Attribute Name="ACP Offset FilterType" Value="Rect" />
<Attribute Name="ACP Offset Roll-off Factor" Value="22" />
</CommonParams>
</AcpParams>
</Params>
</SignalAnalyzerProject>
```

Describe the setting parameters in the part enclosed between the CommonParams elements. The description method consists in describing the parameter name to be set in the Name attribute in the Attribute element, and the setting value in Value. The parts in bold characters in Table 2.17-2 are an actual setting example. Describe all other parts the same as in Table 2.17-2.

Since the settings are done in sequence from the top, be careful about the description order when setting parameters that have relationships of dependence. Also, if a value that is either out of the setting range or that cannot be set has been input, that setting is ignored.
### Table 2.17-3  Parameter List Settings (ACP Measurement)

<table>
<thead>
<tr>
<th>Parameter</th>
<th>Attribute Name Setting</th>
<th>Attribute Value Setting</th>
</tr>
</thead>
<tbody>
<tr>
<td>Center Frequency</td>
<td>“Center Freq.”</td>
<td>Value is described in Hz units.</td>
</tr>
<tr>
<td>Spurious Mode</td>
<td>“Frequency Band Spurious Mode”</td>
<td>“Normal”: Normal “Spurious”: Spurious</td>
</tr>
<tr>
<td>Span Frequency</td>
<td>“Span Freq.”</td>
<td>Value is described in Hz units.</td>
</tr>
<tr>
<td>Reference Level</td>
<td>“Reference Level”</td>
<td>Value is described in dBm units.</td>
</tr>
<tr>
<td>Reference Level Offset</td>
<td>“Reference Level Offset”</td>
<td>“On”: On “Off”: Off</td>
</tr>
<tr>
<td>Reference Level Offset Value</td>
<td>“Reference Level Offset Value”</td>
<td>Value is described in 0.01 dB units.</td>
</tr>
<tr>
<td>RBW</td>
<td>“RBW Value”</td>
<td>“30Hz”: 30 Hz “100Hz”: 100 Hz “300Hz”: 300 Hz “500Hz”: 500 Hz “1kHz”: 1 kHz “3kHz”: 3 kHz “10kHz”: 10 kHz “30kHz”: 30 kHz “50kHz”: 50 kHz “100kHz”: 100 kHz “300kHz”: 300 kHz “1MHz”: 1 MHz “2MHz”: 2 MHz “3MHz”: 3 MHz “5MHz”: 5 MHz “10MHz”: 10 MHz “20MHz”: 20 MHz</td>
</tr>
</tbody>
</table>
### Table 2.17-3 Parameter List Settings (ACP Measurement) (Cont’d)

<table>
<thead>
<tr>
<th>Parameter</th>
<th>Attribute Name Setting</th>
<th>Attribute Value Setting</th>
</tr>
</thead>
<tbody>
<tr>
<td>VBW</td>
<td>“VBW Value”</td>
<td>“1Hz”: 1 Hz</td>
</tr>
<tr>
<td></td>
<td></td>
<td>“3Hz”: 3 Hz</td>
</tr>
<tr>
<td></td>
<td></td>
<td>“10Hz”: 10 Hz</td>
</tr>
<tr>
<td></td>
<td></td>
<td>“30Hz”: 30 Hz</td>
</tr>
<tr>
<td></td>
<td></td>
<td>“100Hz”: 100 Hz</td>
</tr>
<tr>
<td></td>
<td></td>
<td>“300Hz”: 300 Hz</td>
</tr>
<tr>
<td></td>
<td></td>
<td>“1kHz”: 1 kHz</td>
</tr>
<tr>
<td></td>
<td></td>
<td>“3kHz”: 3 kHz</td>
</tr>
<tr>
<td></td>
<td></td>
<td>“5kHz”: 5 kHz</td>
</tr>
<tr>
<td></td>
<td></td>
<td>“10kHz”: 10 kHz</td>
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<td>“30kHz”: 30 kHz</td>
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<td></td>
<td>“100kHz”: 100 kHz</td>
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<tr>
<td></td>
<td></td>
<td>“300kHz”: 300 kHz</td>
</tr>
<tr>
<td></td>
<td></td>
<td>“1MHz”: 1 MHz</td>
</tr>
<tr>
<td></td>
<td></td>
<td>“3MHz”: 3 MHz</td>
</tr>
<tr>
<td></td>
<td></td>
<td>“10MHz”: 10 MHz</td>
</tr>
<tr>
<td></td>
<td></td>
<td>“Off”: Off</td>
</tr>
<tr>
<td>Sweep Time</td>
<td>“Sweep Time Freq. Domain”</td>
<td>Value is described in ms units.</td>
</tr>
<tr>
<td>Attenuator</td>
<td>“ATTN Value”</td>
<td>Value is described in dB units.</td>
</tr>
<tr>
<td>Storage Mode</td>
<td>“Storage Mode A”</td>
<td>“Lin Average”: Lin Average</td>
</tr>
<tr>
<td></td>
<td></td>
<td>“Average”: Average</td>
</tr>
<tr>
<td></td>
<td></td>
<td>“Max Hold”: Max Hold</td>
</tr>
<tr>
<td></td>
<td></td>
<td>“Min Hold”: Min Hold</td>
</tr>
<tr>
<td></td>
<td></td>
<td>“Off”: Off</td>
</tr>
<tr>
<td>Storage Count</td>
<td>“Storage Count”</td>
<td>Describes the storage count.</td>
</tr>
<tr>
<td>Trace Points</td>
<td>“Trace Points”</td>
<td>Describes the number of trace points.</td>
</tr>
<tr>
<td>Detection</td>
<td>“Detection”</td>
<td>“Pos &amp; Neg; Neg”: Pos &amp; Neg</td>
</tr>
<tr>
<td></td>
<td></td>
<td>“Positive”: Positive</td>
</tr>
<tr>
<td></td>
<td></td>
<td>“Negative”: Negative</td>
</tr>
<tr>
<td></td>
<td></td>
<td>“Sample”: Sample</td>
</tr>
<tr>
<td></td>
<td></td>
<td>“RMS”: RMS</td>
</tr>
<tr>
<td>Parameter</td>
<td>Attribute Name Setting</td>
<td>Attribute Value Setting</td>
</tr>
<tr>
<td>-------------------------------</td>
<td>-------------------------</td>
<td>---------------------------------------------</td>
</tr>
<tr>
<td>Trigger Switch</td>
<td>&quot;Trigger Switch&quot;</td>
<td>&quot;Off&quot;: Off</td>
</tr>
<tr>
<td></td>
<td></td>
<td>&quot;On&quot;: On</td>
</tr>
<tr>
<td>Trigger Source</td>
<td>&quot;Trigger Source&quot;</td>
<td>&quot;Video&quot;: Video</td>
</tr>
<tr>
<td></td>
<td></td>
<td>&quot;External&quot;: External</td>
</tr>
<tr>
<td></td>
<td></td>
<td>&quot;SG Marker&quot;: SG Marker</td>
</tr>
<tr>
<td></td>
<td></td>
<td>&quot;Wide IF Video&quot;: Wide IF Video</td>
</tr>
<tr>
<td></td>
<td></td>
<td>&quot;BBIF&quot;: BBIF</td>
</tr>
<tr>
<td>Trigger Slope</td>
<td>&quot;Trigger Slope&quot;</td>
<td>&quot;Rise&quot;: Rise</td>
</tr>
<tr>
<td></td>
<td></td>
<td>&quot;Fall&quot;: Fall</td>
</tr>
<tr>
<td>Trigger Level (Video)</td>
<td>&quot;Trigger Level(Video)Log&quot;</td>
<td>Value is described in dBm units.</td>
</tr>
<tr>
<td>Trigger Level (Wide IF Video)</td>
<td>&quot;Trigger Level(Wide)&quot;</td>
<td>Value is described in dBm units.</td>
</tr>
<tr>
<td>Gate Sweep</td>
<td>&quot;Gate Sweep&quot;</td>
<td>&quot;Off&quot;: Off</td>
</tr>
<tr>
<td></td>
<td></td>
<td>&quot;On&quot;: On</td>
</tr>
<tr>
<td>Gate Source</td>
<td>&quot;Gate Source&quot;</td>
<td>&quot;External&quot;: External</td>
</tr>
<tr>
<td></td>
<td></td>
<td>&quot;SG Marker&quot;: SG Marker</td>
</tr>
<tr>
<td></td>
<td></td>
<td>&quot;Wide IF Video&quot;: Wide IF Video</td>
</tr>
<tr>
<td></td>
<td></td>
<td>&quot;BBIF&quot;: BBIF</td>
</tr>
<tr>
<td>Gate Delay</td>
<td>&quot;Gate Delay&quot;</td>
<td>Value is described in ns units.</td>
</tr>
<tr>
<td>Gate Length</td>
<td>&quot;Gate Length&quot;</td>
<td>Value is described in ns units.</td>
</tr>
<tr>
<td>Gate Level (Wide IF Video)</td>
<td>&quot;Gate Level(Wide)&quot;</td>
<td>Value is described in dBm units.</td>
</tr>
<tr>
<td>Gate Slope</td>
<td>&quot;Gate Slope&quot;</td>
<td>&quot;Rise&quot;: Rise</td>
</tr>
<tr>
<td></td>
<td></td>
<td>&quot;Fall&quot;: Fall</td>
</tr>
<tr>
<td>Pre-amp</td>
<td>&quot;Pre-amp&quot;</td>
<td>&quot;Off&quot;: Off</td>
</tr>
<tr>
<td></td>
<td></td>
<td>&quot;On&quot;: On</td>
</tr>
<tr>
<td>VBW Mode</td>
<td>&quot;VBW Mode&quot;</td>
<td>&quot;Power&quot;: Power</td>
</tr>
<tr>
<td></td>
<td></td>
<td>&quot;Video&quot;: Video</td>
</tr>
<tr>
<td>ACP Reference</td>
<td>&quot;ACP Reference&quot;</td>
<td>&quot;Both Sides of#xA;Carriers&quot;: Both Sides of Carriers</td>
</tr>
<tr>
<td></td>
<td></td>
<td>&quot;Span Total&quot;: Span Total</td>
</tr>
<tr>
<td></td>
<td></td>
<td>&quot;Carrier Total&quot;: Carrier Total</td>
</tr>
<tr>
<td></td>
<td></td>
<td>&quot;Carrier Select&quot;: Carrier Select</td>
</tr>
</tbody>
</table>
### Table 2.17-3 Parameter List Settings (ACP Measurement) (Cont’d)

<table>
<thead>
<tr>
<th>Parameter</th>
<th>Attribute Name Setting</th>
<th>Attribute Value Setting</th>
</tr>
</thead>
<tbody>
<tr>
<td>ACP Carrier Select Number</td>
<td>“ACP Carrier Select Number”</td>
<td>Describes reference carrier number.</td>
</tr>
<tr>
<td>ACP In Band Center</td>
<td>“ACP In Band Center”</td>
<td>Value is described in Hz units.</td>
</tr>
<tr>
<td>ACP Carrier Spacing</td>
<td>“ACP Carrier Spacing”</td>
<td>Value is described in Hz units.</td>
</tr>
<tr>
<td>ACP Carrier BW</td>
<td>“ACP Carrier BW”</td>
<td>Value is described in Hz units.</td>
</tr>
<tr>
<td>ACP In Band FilterType</td>
<td>“ACP In Band FilterType”</td>
<td>“Rect”: Rect “Nyquist”: Nyquist “Root Nyquist”: Root Nyquist</td>
</tr>
<tr>
<td>ACP In Band Roll-off Factor</td>
<td>“ACP In Band Roll-off Factor”</td>
<td>Value is described in Hz units.</td>
</tr>
<tr>
<td>ACP Offset Ch Bw</td>
<td>“ACP Offset Ch Bw”</td>
<td>Value is described in Hz units.</td>
</tr>
<tr>
<td>ACP Offset1 Switch</td>
<td>“ACP Offset1 Switch”</td>
<td>“Off”: Off “On”: On</td>
</tr>
<tr>
<td>ACP Offset2 Switch</td>
<td>“ACP Offset2 Switch”</td>
<td>“Off”: Off “On”: On</td>
</tr>
<tr>
<td>ACP Offset3 Switch</td>
<td>“ACP Offset3 Switch”</td>
<td>“Off”: Off “On”: On</td>
</tr>
<tr>
<td>ACP Offset1 Value</td>
<td>“ACP Offset1 Value”</td>
<td>Value is described in Hz units.</td>
</tr>
<tr>
<td>ACP Offset2 Value</td>
<td>“ACP Offset2 Value”</td>
<td>Value is described in Hz units.</td>
</tr>
<tr>
<td>ACP Offset3 Value</td>
<td>“ACP Offset3 Value”</td>
<td>Value is described in Hz units.</td>
</tr>
<tr>
<td>ACP Offset FilterType</td>
<td>“ACP Offset FilterType”</td>
<td>“Rect”: Rect “Nyquist”: Nyquist “Root Nyquist”: Root Nyquist</td>
</tr>
<tr>
<td>ACP Offset Roll-off Factor</td>
<td>“ACP Offset Roll-off Factor”</td>
<td>Value is described in 0.01 units.</td>
</tr>
<tr>
<td>ACP Power Result Type</td>
<td>“ACP Power Result Type”</td>
<td>“Ofs.”: Offset “Carrier”: Carrier</td>
</tr>
</tbody>
</table>
Chapter 2  SCPI Device Message Details

:MEASure:BATCh:OBWidth[n]? <filename>[,<device>]
Occupied Bandwidth Batch Measure

Function

This command executes OBW measurement and outputs the measurement result after the parameters described in the specified parameter list file have been set.

Query

:MEASure:BATCh:OBWidth[n]? <filename>[,<device>]

Response

The same value as for :MEASure:OBWidth[n]? is returned. Refer to :MEASure:OBWidth[n]? for details.

Parameter

- `<filename>` Parameter list file
  Specify with any character string enclosed by double quotes (" ") or single quotes (’ ’).
- `<device>` Drive name
  A,B,D,E,F,...
  D drive is used when omitted.

Details

OBW measurement is executed and the result is output after the parameters described in the specified parameter list have been set. The return values of this function vary depending on the result mode. (cf. :SYSTem:RESult:MODE)

Place the parameter list files in the following folder on the specified drive. <device>:\Anritsu Corporation\Signal Analyzer\User Data\Batch

If the parameter list file has been changed, the changes must be applied with the :MMEMory:RELoad:BATCh command. (cf. :MMEMory:RELoad:BATCh)

Example of Use

To acquire the measurement result of OBW measurement using the MyParam.xls parameter list file. (A mode, n = 1)

READ:BATC:OBW? "MyParam"
> 30000,1000000000,900050000,1000050000
2.17 Configuring Batch Measurement Settings

Parameter list format

Table 2.17-4 lists the parameter list example.

Table 2.17-4  Parameter List Example (OBW Measurement)

```xml
<?xml version="1.0" encoding="UTF-8"?>
<SignalAnalyzerProject>
  <ProjectDefine>
    <Attribute Name="Type" Value="Application" />
    <Attribute Name="Name" Value="Batch Parameter List" />
    <Attribute Name="FileVersion" Value="1.0.0.0" />
  </ProjectDefine>
  <Params>
    <SystemTemplate>
      <Attribute Name="ListString" Value="OBW1" />
      <Attribute Name="CommandArg" Value="OBW1" />
      <Attribute Name="AcpDefault" Value="OBW1" />
    </SystemTemplate>
    <ObwParams Name="OBW1">
      <ParamDefine>
        <Attribute Name="ListString" Value="OBW1" />
        <Attribute Name="CommandArg" Value="OBW1" />
      </ParamDefine>
      <CommonParams>
        <Attribute Name="Trace Points" Value="1001" />
        <Attribute Name="Span Freq." Value="10000000" />
        <Attribute Name="RBW Value" Value="30kHz" />
        <Attribute Name="Detection" Value="RMS" />
        <Attribute Name="Sweep Time Switch" Value="Auto" />
        <Attribute Name="Auto Sweep Time Select" Value="Normal" />
        <Attribute Name="OBW Method" Value="N\%" />
        <Attribute Name="OBW N Ratio" Value="9900" />
      </CommonParams>
    </ObwParams>
  </Params>
</SignalAnalyzerProject>
```

The description method consists in describing the parameter name to be set in the Name attribute in the Attribute element, and the setting value in Value. The parts in bold characters in Table 2.17-4 are an actual setting example. Describe all other parts the same as in Table 2.17-4.
Since the settings are done in sequence from the top, be careful about the description order when setting parameters that have relationships of dependence. Also, if a value that is either out of the setting range or that cannot be set has been input, that setting is ignored.

Table 2.17-5  Parameter List Settings (OBW Measurement)

<table>
<thead>
<tr>
<th>Parameter</th>
<th>Attribute Name Setting</th>
<th>Attribute Value Setting</th>
</tr>
</thead>
<tbody>
<tr>
<td>Center Frequency</td>
<td>“Center Freq.”</td>
<td>Value is described in Hz units.</td>
</tr>
</tbody>
</table>
| Spurious Mode              | “Frequency Band Spurious Mode” | “Normal”: Normal  
“Spurious”: Spurious |
| Span Frequency             | “Span Freq.”               | Value is described in Hz units.                         |
| Reference Level            | “Reference Level”          | Value is described in dBm units.                        |
| Reference Level Offset     | “Reference Level Offset”   | “On”: On  
“Off”: Off                                              |
| Reference Level Offset Value| “Reference Level Offset Value” | Value is described in 0.01 dB units.                     |
| RBW Auto/Manual            | “RBW Switch”              | “Auto”: Auto  
| VBW Auto/Manual            | “VBW Switch”              | “Auto”: Auto  
| Sweep Time Auto/Manual     | “Sweep Time Switch”        | “Auto”: Auto  
| Attenuator Auto/Manual     | “ATTN Switch”             | “Auto”: Auto  
| RBW                        | “RBW Value”               | “30Hz”: 30 Hz  
“100Hz”: 100 Hz  
“300Hz”: 300 Hz  
“500Hz”: 500 Hz  
“1kHz”: 1 kHz  
“3kHz”: 3 kHz  
“10kHz”: 10 kHz  
“30kHz”: 30 kHz  
“50kHz”: 50 kHz  
“100kHz”: 100 kHz  
“300kHz”: 300 kHz  
“1MHz”: 1 MHz  
“2MHz”: 2 MHz  
“3MHz”: 3 MHz  
“5MHz”: 5 MHz  
“10MHz”: 10 MHz  
“20MHz”: 20 MHz |
### Table 2.17-5  Parameter List Settings (OBW Measurement) (Cont'd)

<table>
<thead>
<tr>
<th>Parameter</th>
<th>Attribute Name Setting</th>
<th>Attribute Value Setting</th>
</tr>
</thead>
<tbody>
<tr>
<td>VBW</td>
<td>“VBW Value”</td>
<td>“1Hz”: 1 Hz&lt;br&gt;“3Hz”: 3 Hz&lt;br&gt;“10Hz”: 10 Hz&lt;br&gt;“30Hz”: 30 Hz&lt;br&gt;“100Hz”: 100 Hz&lt;br&gt;“300Hz”: 300 Hz&lt;br&gt;“1kHz”: 1 kHz&lt;br&gt;“3kHz”: 3 kHz&lt;br&gt;“5kHz”: 5 kHz&lt;br&gt;“10kHz”: 10 kHz&lt;br&gt;“30kHz”: 30 kHz&lt;br&gt;“100kHz”: 100 kHz&lt;br&gt;“300kHz”: 300 kHz&lt;br&gt;“1MHz”: 1 MHz&lt;br&gt;“3MHz”: 3 MHz&lt;br&gt;“10MHz”: 10 MHz&lt;br&gt;“Off”: Off</td>
</tr>
<tr>
<td>Sweep Time</td>
<td>“Sweep Time Freq. Domain”</td>
<td>Value is described in ms units.</td>
</tr>
<tr>
<td>Attenuator</td>
<td>“ATTN Value”</td>
<td>Value is described in dB units.</td>
</tr>
<tr>
<td>Storage Mode</td>
<td>“Storage Mode A”</td>
<td>“Lin Average”: Lin Average&lt;br&gt;“Average”: Average&lt;br&gt;“Max Hold”: Max Hold&lt;br&gt;“Min Hold”: Min Hold&lt;br&gt;“Off”: Off</td>
</tr>
<tr>
<td>Storage Count</td>
<td>“Storage Count”</td>
<td>Describes the storage count.</td>
</tr>
<tr>
<td>Trace Points</td>
<td>“Trace Points”</td>
<td>Describes the number of trace points.</td>
</tr>
<tr>
<td>Detection</td>
<td>“Detection”</td>
<td>“Pos &amp; Neg”: Pos &amp; Neg&lt;br&gt;“Positive”: Positive&lt;br&gt;“Negative”: Negative&lt;br&gt;“Sample”: Sample&lt;br&gt;“RMS”: RMS</td>
</tr>
</tbody>
</table>
### Table 2.17-5  Parameter List Settings (OBW Measurement) (Cont’d)

<table>
<thead>
<tr>
<th>Parameter</th>
<th>Attribute Name Setting</th>
<th>Attribute Value Setting</th>
</tr>
</thead>
</table>
| Trigger Switch             | "Trigger Switch"             | “Off”: Off  
                              | "On": On                                                                         |
| Trigger Source             | "Trigger Source"             | "Video": Video  
                              | "External": External  
                              | "SG Marker": SG Marker  
                              | "Wide IF Video": Wide IF Video  
                              | "BBIF": BBIF  |
| Trigger Slope              | "Trigger Slope"              | "Rise": Rise  
                              | "Fall": Fall                                                                     |
| Trigger Level (Video)      | "Trigger Level(Video)Log"    | Value is described in dBm units.                                                        |
| Trigger Level (Wide IF Video) | "Trigger Level(Wide)"       | Value is described in dBm units.                                                        |
| Gate Sweep                 | "Gate Sweep"                 | "Off": Off  
                              | "On": On                                                                         |
| Gate Source                | "Gate Source"                | "External": External  
                              | "SG Marker": SG Marker  
                              | "Wide IF Video": Wide IF Video  
                              | "BBIF": BBIF  |
| Gate Delay                 | "Gate Delay"                 | Value is described in ns units.                                                         |
| Gate Length                | "Gate Length"                | Value is described in ns units.                                                         |
| Gate Level (Wide IF Video) | "Gate Level(Wide)"           | Value is described in dBm units.                                                        |
| Gate Slope                 | "Gate Slope"                 | "Rise": Rise  
                              | "Fall": Fall                                                                     |
| Pre-amp                    | "Pre-amp"                    | "Off": Off  
                              | "On": On                                                                         |
| VBW Mode                   | "V BW Mode"                  | "Power": Power  
                              | "Video": Video  |
| OBW Method                 | "OBW Method"                 | "N%": N%  
                              | "X dB": X dB  |
| OBW N% Ratio               | "OBW N Ratio"                | Value is described in 0.01 % units.                                                     |
| OBW X dB Value             | "OBW X dB Value"             | Value is described in 0.01 dB units.                                                    |
| Auto Sweep Time Select     | "Auto Sweep Time Select"     | "Normal": Normal  
                              | "Fast": Fast                                                                     |
2.17 Configuring Batch Measurement Settings

:MEASure:BATCh:SEMask[n]? <filename>[,<device>]
Spectrum Emission Mask Batch Measure

Function

This command executes Spectrum Emission Mask measurement and outputs the measurement result after the parameters described in the specified parameter list file have been set.

Query

:MEASure:BATCh:SEMask[n]? <filename>[,<device>]

Response

The same value as for :MEASure:SEMask[n]? is returned. Refer to :MEASure:SEMask[n]? for details.

Parameter

<filename> Parameter list file
Specify with any character string enclosed by double quotes (" ") or single quotes (’ ’).

<device> Drive name
A,B,D,E,F,...
D drive is used when omitted.

Details

Spectrum Emission Mask measurement is executed and the result is output after the parameters described in the specified parameter list have been set.
The return values of this function vary depending on the result mode. (cf. :SYSTem:RESult:MODE)
Place the parameter list files in the following folder on the specified drive.
<device>:\Anritsu Corporation\Signal Analyzer\User Data\Batch

If the parameter list file has been changed, the changes must be reflected with the :MMEMory:RELoad:BATCh command. (cf. :MMEMory:RELoad:BATCh)
Example of Use

To acquire the peak value of absolute power of SEM measurement using the MyParam.xls parameter list file (n = 10).

```
MEAS:BATC:SEM10? "MyParam"
> 999.0,-999.0,-100.000,-100.000,-60.000,-60.000,45.000,-45.000,-30.000,-30.000,-10.000,-10.000,0.000,0.000
```

Parameter list format

Table 2.17-6 lists the parameter list example.
Table 2.17-6  Parameter List Example (SEM Measurement)

```xml
<?xml version="1.0" encoding="UTF-8"?>
<!-- System Template XML Parameter -->
<SignalAnalyzerProject>
    <ProjectDefine>
        <Attribute Name="Type" Value="Application" />
        <Attribute Name="Name" Value="Batch Parameter List" />
        <Attribute Name="FileVersion" Value="1.0.0.0" />
    </ProjectDefine>
    <Params>
        <SystemTemplate>
            <Attribute Name="ListString" Value="SEM1" />
            <Attribute Name="CommandArg" Value="SEM1" />
            <Attribute Name="AcpDefault" Value="SEM1" />
        </SystemTemplate>
        <SemParams Name="SEM1">
            <ParamDefine>
                <Attribute Name="ListString" Value="SEM1" />
                <Attribute Name="CommandArg" Value="SEM1" />
            </ParamDefine>
            <CommonParams>
                <Attribute Name="Center Freq." Value="2132500000" />
                <Attribute Name="SEM Limit Side" Value="Both" />
                <Attribute Name="SEM Reference Mode" Value="Channel" />
                <Attribute Name="SEM Reference Ch BW" Value="5000000" />
                <Attribute Name="SEM RBW Value" Value="30kHz" />
                <Attribute Name="SEM Reference SweepTime Switch" Value="Auto" />
                <Attribute Name="SEM Reference Auto Sweep Time Select" Value="Normal" />
                <Attribute Name="SEM Reference Detection" Value="RMS" />
                <Attribute Name="SEM Reference TracePoint" Value="1001" />
                <Attribute Name="SEM Offset1 Switch" Value="On" />
                <Attribute Name="SEM Offset1 Start Freq" Value="25500000" />
                <Attribute Name="SEM Offset1 Stop Freq" Value="75500000" />
                <Attribute Name="SEM Offset1 Reference Level Switch" Value="Auto" />
                <Attribute Name="SEM Offset1 RBW Value" Value="100kHz" />
                <Attribute Name="SEM Offset1 SweepTime Switch" Value="Auto" />
                <Attribute Name="SEM Offset1 Auto Sweep Time Select" Value="Normal" />
                <Attribute Name="SEM Offset1 Detection" Value="RMS" />
                <Attribute Name="SEM Offset1 TracePoint" Value="1001" />
                <Attribute Name="SEM Offset1 Integrate BW Switch" Value="Auto" />
            </CommonParams>
        </SemParams>
    </Params>
</SignalAnalyzerProject>
```
Table 2.17-6 Parameter List Example (SEM Measurement) (Cont’d)

<table>
<thead>
<tr>
<th>Attribute Name</th>
<th>Value</th>
</tr>
</thead>
<tbody>
<tr>
<td>SEM Offset1 ABS1 Start Level</td>
<td>-550</td>
</tr>
<tr>
<td>SEM Offset1 ABS1 Stop Level</td>
<td>-1250</td>
</tr>
<tr>
<td>SEM Offset1 Fail Logic</td>
<td>ABS1</td>
</tr>
<tr>
<td>SEM Offset2 Switch</td>
<td>On</td>
</tr>
<tr>
<td>SEM Offset2 Start Freq</td>
<td>75500000</td>
</tr>
<tr>
<td>SEM Offset2 Stop Freq</td>
<td>125500000</td>
</tr>
<tr>
<td>SEM Offset2 Reference Level Switch</td>
<td>Auto</td>
</tr>
<tr>
<td>SEM Offset2 RBW Value</td>
<td>100kHz</td>
</tr>
<tr>
<td>SEM Offset2 SweepTime Switch</td>
<td>Auto</td>
</tr>
<tr>
<td>SEM Offset2 Auto Sweep Time Select</td>
<td>Normal</td>
</tr>
<tr>
<td>SEM Offset2 Detection</td>
<td>RMS</td>
</tr>
<tr>
<td>SEM Offset2 TracePoint</td>
<td>1001</td>
</tr>
<tr>
<td>SEM Offset2 Integrate BW Switch</td>
<td>Auto</td>
</tr>
<tr>
<td>SEM Offset2 ABS1 Start Level</td>
<td>-1250</td>
</tr>
<tr>
<td>SEM Offset2 ABS1 Stop Level</td>
<td>-1250</td>
</tr>
<tr>
<td>SEM Offset3 Switch</td>
<td>On</td>
</tr>
<tr>
<td>SEM Offset3 Start Freq</td>
<td>125500000</td>
</tr>
<tr>
<td>SEM Offset3 Stop Freq</td>
<td>475000000</td>
</tr>
<tr>
<td>SEM Offset3 Reference Level Switch</td>
<td>Auto</td>
</tr>
<tr>
<td>SEM Offset3 RBW Value</td>
<td>100kHz</td>
</tr>
<tr>
<td>SEM Offset3 SweepTime Switch</td>
<td>Auto</td>
</tr>
<tr>
<td>SEM Offset3 Auto Sweep Time Select</td>
<td>Normal</td>
</tr>
<tr>
<td>SEM Offset3 Detection</td>
<td>RMS</td>
</tr>
<tr>
<td>SEM Offset3 TracePoint</td>
<td>1001</td>
</tr>
<tr>
<td>SEM Offset3 Integrate BW Switch</td>
<td>Auto</td>
</tr>
<tr>
<td>SEM Offset3 ABS1 Start Level</td>
<td>-1300</td>
</tr>
<tr>
<td>SEM Offset3 ABS1 Stop Level</td>
<td>-1300</td>
</tr>
<tr>
<td>SEM Offset3 Fail Logic</td>
<td>ABS1</td>
</tr>
<tr>
<td>SEM Offset4 Switch</td>
<td>Off</td>
</tr>
<tr>
<td>SEM Offset4 Fail Logic</td>
<td>Off</td>
</tr>
<tr>
<td>SEM Offset5 Switch</td>
<td>Off</td>
</tr>
<tr>
<td>SEM Offset5 Fail Logic</td>
<td>Off</td>
</tr>
<tr>
<td>SEM Offset6 Switch</td>
<td>Off</td>
</tr>
<tr>
<td>SEM Offset6 Fail Logic</td>
<td>Off</td>
</tr>
</tbody>
</table>

</CommonParams>
</SemParams>
</Params>
</SignalAnalyzerProject>
Describe the setting parameters in the part enclosed between the CommonParams elements. The description method consists in describing the parameter name to be set in the Name attribute in the Attribute element, and the setting value in Value. The parts in bold characters in Table 2.17-6 are an actual setting example. Describe all other parts the same as in Table 2.17-6.

Since the settings are done in sequence from the top, be careful about the description order when setting parameters that have relationships of dependence. Also, if a value that is either out of the setting range or that cannot be set has been input, that setting is ignored.

Table 2.17-7  Parameter List Settings (SEM Measurement)

<table>
<thead>
<tr>
<th>Parameter</th>
<th>Attribute Name Setting</th>
<th>Attribute Value Setting</th>
</tr>
</thead>
<tbody>
<tr>
<td>Center Frequency</td>
<td>“Center Freq.”</td>
<td>Value is described in Hz units.</td>
</tr>
<tr>
<td>Reference Level</td>
<td>“Reference Level”</td>
<td>Value is described in dBm units.</td>
</tr>
<tr>
<td>Reference Level Offset Value</td>
<td>“Reference Level Offset Value”</td>
<td>Value is described in 0.01 dB units.</td>
</tr>
<tr>
<td>Storage Count</td>
<td>“Storage Count”</td>
<td>Describes the storage count.</td>
</tr>
<tr>
<td>Parameter</td>
<td>Attribute Name Setting</td>
<td>Attribute Value Setting</td>
</tr>
<tr>
<td>----------------------------</td>
<td>------------------------</td>
<td>---------------------------------------------</td>
</tr>
<tr>
<td>Trigger Switch</td>
<td>“Trigger Switch”</td>
<td>“Off”: Off  “On”: On</td>
</tr>
<tr>
<td>Trigger Slope</td>
<td>“Trigger Slope”</td>
<td>“Rise”: Rise  “Fall”: Fall</td>
</tr>
<tr>
<td>Trigger Level (Video)</td>
<td>“Trigger Level(Video)Log”</td>
<td>Value is described in dBm units.</td>
</tr>
<tr>
<td>Trigger Level (Wide IF Video)</td>
<td>“Trigger Level(Wide)”</td>
<td>Value is described in dBm units.</td>
</tr>
<tr>
<td>Gate Sweep</td>
<td>“Gate Sweep”</td>
<td>“Off”: Off  “On”: On</td>
</tr>
<tr>
<td>Gate Source</td>
<td>“Gate Source”</td>
<td>“External”: External  “SG Marker”: SG Marker “Wide IF Video”: Wide IF Video “BBIF”: BBIF</td>
</tr>
<tr>
<td>Gate Delay</td>
<td>“Gate Delay”</td>
<td>Value is described in ns units.</td>
</tr>
<tr>
<td>Gate Length</td>
<td>“Gate Length”</td>
<td>Value is described in ns units.</td>
</tr>
<tr>
<td>Gate Level (Wide IF Video)</td>
<td>“Gate Level(Wide)”</td>
<td>Value is described in dBm units.</td>
</tr>
<tr>
<td>Gate Slope</td>
<td>“Gate Slope”</td>
<td>“Rise”: Rise  “Fall”: Fall</td>
</tr>
<tr>
<td>Pre-amp</td>
<td>“Pre-amp”</td>
<td>“Off”: Off  “On”: On</td>
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### Table 2.17-7 Parameter List Settings (SEM Measurement) (Cont’d)

<table>
<thead>
<tr>
<th>Parameter</th>
<th>Attribute Name Setting</th>
<th>Attribute Value Setting</th>
</tr>
</thead>
<tbody>
<tr>
<td>SEM Reference Mode</td>
<td>“SEM Reference Mode”</td>
<td>“Channel”: Channel “Peak”: Peak “Fix”: Fix</td>
</tr>
<tr>
<td>SEM Reference Power</td>
<td>“SEM Reference Power”</td>
<td>Value is described in 0.01 dBm units.</td>
</tr>
<tr>
<td>SEM Reference Ch BW</td>
<td>“SEM Reference Ch BW”</td>
<td>Value is described in Hz units.</td>
</tr>
<tr>
<td>SEM Reference FilterType</td>
<td>“SEM Reference FilterType”</td>
<td>“Rect”: Rect “Nyquist”: Nyquist “Root Nyquist”: Root Nyquist</td>
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<tr>
<td>Auto/Manual</td>
<td>Switch”</td>
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</tr>
<tr>
<td>SEM Reference Attenuator</td>
<td>“SEM Reference Attenuator</td>
<td>Value is described in dB units.</td>
</tr>
<tr>
<td>Value</td>
<td>Value”</td>
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<tr>
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### Table 2.17-7 Parameter List Settings (SEM Measurement) (Cont’d)

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<th>Parameter</th>
<th>Attribute Name Setting</th>
<th>Attribute Value Setting</th>
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<td>“10MHz”: 10 MHz</td>
</tr>
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<td></td>
<td>“Off”: Off</td>
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<td>“SEM VBW Mode”</td>
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<tr>
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<td></td>
<td>“Video”: Video</td>
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<td>SEM Reference SweepTime Value</td>
<td>“SEM Reference SweepTime Value”</td>
<td>Value is described in ms units.</td>
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<td>“SEM Reference Auto Sweep Time Select”</td>
<td>“Normal”: Normal</td>
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<td>“Fast”: Fast</td>
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<td>“SEM Reference Detection”</td>
<td>“Pos &amp; Neg”: Pos &amp; Neg</td>
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<td></td>
<td>“Positive”: Positive</td>
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<td>“Negative”: Negative</td>
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<td>“Sample”: Sample</td>
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<td></td>
<td>“RMS”: RMS</td>
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<td>SEM Reference TracePoint</td>
<td>“SEM Reference TracePoint”</td>
<td>Describes the number of trace points.</td>
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<td>“SEM Couple Ref &amp; Att”</td>
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<td></td>
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<td>“On”: On</td>
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<td>Parameter</td>
<td>Attribute Name Setting</td>
<td>Attribute Value Setting</td>
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<tr>
<td>SEM Offset1 Switch</td>
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<td>“Off”: Off “On”: On</td>
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<td>“SEM Offset3 Switch”</td>
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<td>SEM Offset4 Switch</td>
<td>“SEM Offset4 Switch”</td>
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<td>“SEM Offset5 Switch”</td>
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<tr>
<td>SEM Offset6 Switch</td>
<td>“SEM Offset6 Switch”</td>
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<td>“SEM Offset1 Start Freq”</td>
<td>Value is described in Hz units.</td>
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<td>“SEM Offset3 Start Freq”</td>
<td>Same as above</td>
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<tr>
<td>SEM Offset4 Start Freq</td>
<td>“SEM Offset4 Start Freq”</td>
<td>Same as above</td>
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<tr>
<td>SEM Offset5 Start Freq</td>
<td>“SEM Offset5 Start Freq”</td>
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<td>SEM Offset6 Start Freq</td>
<td>“SEM Offset6 Start Freq”</td>
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<td>SEM Offset1 Stop Freq</td>
<td>“SEM Offset1 Stop Freq”</td>
<td>Value is described in Hz units.</td>
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<td>SEM Offset3 Stop Freq</td>
<td>“SEM Offset3 Stop Freq”</td>
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<td>SEM Offset4 Stop Freq</td>
<td>“SEM Offset4 Stop Freq”</td>
<td>Same as above</td>
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<tr>
<td>SEM Offset5 Stop Freq</td>
<td>“SEM Offset5 Stop Freq”</td>
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<td>SEM Offset6 Stop Freq</td>
<td>“SEM Offset6 Stop Freq”</td>
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<td>Auto/Manual</td>
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<td>“SEM Offset4 Reference Level Switch”</td>
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<td>Auto/Manual</td>
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<td></td>
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<td>“SEM Offset5 Reference Level Switch”</td>
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<td>Auto/Manual</td>
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<td>SEM Offset6 Reference Level</td>
<td>“SEM Offset6 Reference Level Switch”</td>
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<td>Auto/Manual</td>
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Table 2.17-7  Parameter List Settings (SEM Measurement) (Cont’d)

<table>
<thead>
<tr>
<th>Parameter</th>
<th>Attribute Name Setting</th>
<th>Attribute Value Setting</th>
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<tbody>
<tr>
<td>SEM Offset1 Reference Level</td>
<td>“SEM Offset1 Reference Level”</td>
<td>Value is described in 0.01 dBm units.</td>
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<tr>
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<td>“SEM Offset2 Reference Level”</td>
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<td>SEM Offset4 Reference Level</td>
<td>“SEM Offset4 Reference Level”</td>
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<tr>
<td>SEM Offset5 Reference Level</td>
<td>“SEM Offset5 Reference Level”</td>
<td>Same as above</td>
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<tr>
<td>SEM Offset6 Reference Level</td>
<td>“SEM Offset6 Reference Level”</td>
<td>Same as above</td>
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<tr>
<td>SEM Offset1 Attenuator Auto/Manual</td>
<td>“SEM Offset1 Attenuator Switch”</td>
<td>“Auto”: Auto</td>
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<tr>
<td>SEM Offset2 Attenuator Auto/Manual</td>
<td>“SEM Offset2 Attenuator Switch”</td>
<td>Same as above</td>
</tr>
<tr>
<td>SEM Offset3 Attenuator Auto/Manual</td>
<td>“SEM Offset3 Attenuator Switch”</td>
<td>Same as above</td>
</tr>
<tr>
<td>SEM Offset4 Attenuator Auto/Manual</td>
<td>“SEM Offset4 Attenuator Switch”</td>
<td>Same as above</td>
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<tr>
<td>SEM Offset5 Attenuator Auto/Manual</td>
<td>“SEM Offset5 Attenuator Switch”</td>
<td>Same as above</td>
</tr>
<tr>
<td>SEM Offset6 Attenuator Auto/Manual</td>
<td>“SEM Offset6 Attenuator Switch”</td>
<td>Same as above</td>
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<td>“SEM Offset1 Attenuator Value”</td>
<td>Value is described in dB units.</td>
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<tr>
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<td>“SEM Offset3 Attenuator Value”</td>
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<tr>
<td>SEM Offset4 Attenuator</td>
<td>“SEM Offset4 Attenuator Value”</td>
<td>Same as above</td>
</tr>
<tr>
<td>SEM Offset5 Attenuator</td>
<td>“SEM Offset5 Attenuator Value”</td>
<td>Same as above</td>
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<tr>
<td>SEM Offset6 Attenuator</td>
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### Table 2.17-7 Parameter List Settings (SEM Measurement) (Cont’d)

<table>
<thead>
<tr>
<th>Parameter</th>
<th>Attribute Name Setting</th>
<th>Attribute Value Setting</th>
</tr>
</thead>
<tbody>
<tr>
<td>SEM Offset1 RBW Auto/Manual</td>
<td>“SEM Offset1 RBW Switch”</td>
<td>“Auto”: Auto</td>
</tr>
<tr>
<td>SEM Offset2 RBW Auto/Manual</td>
<td>“SEM Offset2 RBW Switch”</td>
<td>Same as above</td>
</tr>
<tr>
<td>SEM Offset3 RBW Auto/Manual</td>
<td>“SEM Offset3 RBW Switch”</td>
<td>Same as above</td>
</tr>
<tr>
<td>SEM Offset4 RBW Auto/Manual</td>
<td>“SEM Offset4 RBW Switch”</td>
<td>Same as above</td>
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<tr>
<td>SEM Offset5 RBW Auto/Manual</td>
<td>“SEM Offset5 RBW Switch”</td>
<td>Same as above</td>
</tr>
<tr>
<td>SEM Offset6 RBW Auto/Manual</td>
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<table>
<thead>
<tr>
<th>Parameter</th>
<th>Attribute Name Setting</th>
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<tbody>
<tr>
<td>SEM Offset1 RBW</td>
<td>“SEM Offset1 RBW Value”</td>
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<tr>
<td>SEM Offset2 RBW</td>
<td>“SEM Offset2 RBW Value”</td>
</tr>
<tr>
<td>SEM Offset3 RBW</td>
<td>“SEM Offset3 RBW Value”</td>
</tr>
<tr>
<td>SEM Offset4 RBW</td>
<td>“SEM Offset4 RBW Value”</td>
</tr>
<tr>
<td>SEM Offset5 RBW</td>
<td>“SEM Offset5 RBW Value”</td>
</tr>
<tr>
<td>SEM Offset6 RBW</td>
<td>“SEM Offset6 RBW Value”</td>
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- “SEM Offset1 RBW Switch”
- “SEM Offset2 RBW Switch”
- “SEM Offset3 RBW Switch”
- “SEM Offset4 RBW Switch”
- “SEM Offset5 RBW Switch”
- “SEM Offset6 RBW Switch”
Table 2.17-7  Parameter List Settings (SEM Measurement) (Cont’d)

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<thead>
<tr>
<th>Parameter</th>
<th>Attribute Name Setting</th>
<th>Attribute Value Setting</th>
</tr>
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<tbody>
<tr>
<td>SEM Offset1 Integrate BW Auto/Manual</td>
<td>“SEM Offset1 Integrate BW Switch”</td>
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</tr>
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<td>SEM Offset3 Integrate BW Auto/Manual</td>
<td>“SEM Offset3 Integrate BW Switch”</td>
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<tr>
<td>SEM Offset4 Integrate BW Auto/Manual</td>
<td>“SEM Offset4 Integrate BW Switch”</td>
<td>Same as above</td>
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<tr>
<td>SEM Offset5 Integrate BW Auto/Manual</td>
<td>“SEM Offset5 Integrate BW Switch”</td>
<td>Same as above</td>
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<tr>
<td>SEM Offset6 Integrate BW Auto/Manual</td>
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<tr>
<td>SEM Offset1 Integrate BW Value</td>
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<td>Value is described in Hz units.</td>
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<td>SEM Offset6 Integrate BW Value</td>
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### Table 2.17-7 Parameter List Settings (SEM Measurement) (Cont’d)

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<td>“Video”: Video</td>
</tr>
<tr>
<td>SEM Offset2 VBW Mode</td>
<td>“SEM Offset2 VBW Mode”</td>
<td>Same as above</td>
</tr>
<tr>
<td>SEM Offset3 VBW Mode</td>
<td>“SEM Offset3 VBW Mode”</td>
<td>Same as above</td>
</tr>
<tr>
<td>SEM Offset4 VBW Mode</td>
<td>“SEM Offset4 VBW Mode”</td>
<td>Same as above</td>
</tr>
<tr>
<td>SEM Offset5 VBW Mode</td>
<td>“SEM Offset5 VBW Mode”</td>
<td>Same as above</td>
</tr>
<tr>
<td>SEM Offset6 VBW Mode</td>
<td>“SEM Offset6 VBW Mode”</td>
<td>Same as above</td>
</tr>
</tbody>
</table>
Table 2.17-7  Parameter List Settings (SEM Measurement) (Cont’d)

<table>
<thead>
<tr>
<th>Parameter</th>
<th>Attribute Name Setting</th>
<th>Attribute Value Setting</th>
</tr>
</thead>
<tbody>
<tr>
<td>SEM Offset2 SweepTime Auto/Manual</td>
<td>“SEM Offset2 SweepTime Switch”</td>
<td>Same as above</td>
</tr>
<tr>
<td>SEM Offset3 SweepTime Auto/Manual</td>
<td>“SEM Offset3 SweepTime Switch”</td>
<td>Same as above</td>
</tr>
<tr>
<td>SEM Offset4 SweepTime Auto/Manual</td>
<td>“SEM Offset4 SweepTime Switch”</td>
<td>Same as above</td>
</tr>
<tr>
<td>SEM Offset5 SweepTime Auto/Manual</td>
<td>“SEM Offset5 SweepTime Switch”</td>
<td>Same as above</td>
</tr>
<tr>
<td>SEM Offset6 SweepTime Auto/Manual</td>
<td>“SEM Offset6 SweepTime Switch”</td>
<td>Same as above</td>
</tr>
<tr>
<td>SEM Offset1 SweepTime</td>
<td>“SEM Offset1 SweepTime Value”</td>
<td>Value is described in ms units.</td>
</tr>
<tr>
<td>SEM Offset2 SweepTime</td>
<td>“SEM Offset2 SweepTime Value”</td>
<td>Same as above</td>
</tr>
<tr>
<td>SEM Offset3 SweepTime</td>
<td>“SEM Offset3 SweepTime Value”</td>
<td>Same as above</td>
</tr>
<tr>
<td>SEM Offset4 SweepTime</td>
<td>“SEM Offset4 SweepTime Value”</td>
<td>Same as above</td>
</tr>
<tr>
<td>SEM Offset5 SweepTime</td>
<td>“SEM Offset5 SweepTime Value”</td>
<td>Same as above</td>
</tr>
<tr>
<td>SEM Offset6 SweepTime</td>
<td>“SEM Offset6 SweepTime Value”</td>
<td>Same as above</td>
</tr>
<tr>
<td>SEM Offset1 Auto Sweep Time</td>
<td>“SEM Offset1 Auto Sweep Time Select”</td>
<td>“Normal”: Normal “Fast”: Fast</td>
</tr>
<tr>
<td>SEM Offset2 Auto Sweep Time</td>
<td>“SEM Offset2 Auto Sweep Time Select”</td>
<td>Same as above</td>
</tr>
<tr>
<td>SEM Offset3 Auto Sweep Time</td>
<td>“SEM Offset3 Auto Sweep Time Select”</td>
<td>Same as above</td>
</tr>
<tr>
<td>SEM Offset4 Auto Sweep Time</td>
<td>“SEM Offset4 Auto Sweep Time Select”</td>
<td>Same as above</td>
</tr>
<tr>
<td>SEM Offset5 Auto Sweep Time</td>
<td>“SEM Offset5 Auto Sweep Time Select”</td>
<td>Same as above</td>
</tr>
<tr>
<td>SEM Offset6 Auto Sweep Time</td>
<td>“SEM Offset6 Auto Sweep Time Select”</td>
<td>Same as above</td>
</tr>
</tbody>
</table>
### Table 2.17-7 Parameter List Settings (SEM Measurement) (Cont’d)

<table>
<thead>
<tr>
<th>Parameter</th>
<th>Attribute Name Setting</th>
<th>Attribute Value Setting</th>
</tr>
</thead>
</table>
| SEM Offset1 Detection      | “SEM Offset1 Detection”                 | “Pos & Neg”:
|                            |                                        | “Positive”: Positive    |
|                            |                                        | “Negative”: Negative    |
|                            |                                        | “Sample”: Sample        |
|                            |                                        | “RMS”: RMS              |
| SEM Offset2 Detection      | “SEM Offset2 Detection”                 | Same as above            |
| SEM Offset3 Detection      | “SEM Offset3 Detection”                 | Same as above            |
| SEM Offset4 Detection      | “SEM Offset4 Detection”                 | Same as above            |
| SEM Offset5 Detection      | “SEM Offset5 Detection”                 | Same as above            |
| SEM Offset6 Detection      | “SEM Offset6 Detection”                 | Same as above            |
| SEM Offset1 TracePoint     | “SEM Offset1 TracePoint”                | Describes the number of |
|                            |                                        | trace points.            |
| SEM Offset2 TracePoint     | “SEM Offset2 TracePoint”                | Same as above            |
| SEM Offset3 TracePoint     | “SEM Offset3 TracePoint”                | Same as above            |
| SEM Offset4 TracePoint     | “SEM Offset4 TracePoint”                | Same as above            |
| SEM Offset5 TracePoint     | “SEM Offset5 TracePoint”                | Same as above            |
| SEM Offset6 TracePoint     | “SEM Offset6 TracePoint”                | Same as above            |
| SEM Offset1 ABS1 Start Level | “SEM Offset1 ABS1 Start Level”      | Value is described in 0.01 dBm units. |
| SEM Offset2 ABS1 Start Level | “SEM Offset2 ABS1 Start Level”      | Same as above            |
| SEM Offset3 ABS1 Start Level | “SEM Offset3 ABS1 Start Level”      | Same as above            |
| SEM Offset4 ABS1 Start Level | “SEM Offset4 ABS1 Start Level”      | Same as above            |
| SEM Offset5 ABS1 Start Level | “SEM Offset5 ABS1 Start Level”      | Same as above            |
| SEM Offset6 ABS1 Start Level | “SEM Offset6 ABS1 Start Level”      | Same as above            |
Table 2.17-7 Parameter List Settings (SEM Measurement) (Cont’d)

<table>
<thead>
<tr>
<th>Parameter</th>
<th>Attribute Name Setting</th>
<th>Attribute Value Setting</th>
</tr>
</thead>
<tbody>
<tr>
<td>SEM Offset1 ABS1 Stop Level</td>
<td>“SEM Offset1 ABS1 Stop Level”</td>
<td>Value is described in 0.01 dBm units.</td>
</tr>
<tr>
<td>SEM Offset2 ABS1 Stop Level</td>
<td>“SEM Offset2 ABS1 Stop Level”</td>
<td>Same as above</td>
</tr>
<tr>
<td>SEM Offset3 ABS1 Stop Level</td>
<td>“SEM Offset3 ABS1 Stop Level”</td>
<td>Same as above</td>
</tr>
<tr>
<td>SEM Offset4 ABS1 Stop Level</td>
<td>“SEM Offset4 ABS1 Stop Level”</td>
<td>Same as above</td>
</tr>
<tr>
<td>SEM Offset5 ABS1 Stop Level</td>
<td>“SEM Offset5 ABS1 Stop Level”</td>
<td>Same as above</td>
</tr>
<tr>
<td>SEM Offset6 ABS1 Stop Level</td>
<td>“SEM Offset6 ABS1 Stop Level”</td>
<td>Same as above</td>
</tr>
<tr>
<td>SEM Offset1 ABS2 Start Level</td>
<td>“SEM Offset1 ABS2 Start Level”</td>
<td>Value is described in 0.01 dBm units.</td>
</tr>
<tr>
<td>SEM Offset2 ABS2 Start Level</td>
<td>“SEM Offset2 ABS2 Start Level”</td>
<td>Same as above</td>
</tr>
<tr>
<td>SEM Offset3 ABS2 Start Level</td>
<td>“SEM Offset3 ABS2 Start Level”</td>
<td>Same as above</td>
</tr>
<tr>
<td>SEM Offset4 ABS2 Start Level</td>
<td>“SEM Offset4 ABS2 Start Level”</td>
<td>Same as above</td>
</tr>
<tr>
<td>SEM Offset5 ABS2 Start Level</td>
<td>“SEM Offset5 ABS2 Start Level”</td>
<td>Same as above</td>
</tr>
<tr>
<td>SEM Offset6 ABS2 Start Level</td>
<td>“SEM Offset6 ABS2 Start Level”</td>
<td>Same as above</td>
</tr>
<tr>
<td>SEM Offset1 ABS2 Stop Level</td>
<td>“SEM Offset1 ABS2 Stop Level”</td>
<td>Value is described in 0.01 dBm units.</td>
</tr>
<tr>
<td>SEM Offset2 ABS2 Stop Level</td>
<td>“SEM Offset2 ABS2 Stop Level”</td>
<td>Same as above</td>
</tr>
<tr>
<td>SEM Offset3 ABS2 Stop Level</td>
<td>“SEM Offset3 ABS2 Stop Level”</td>
<td>Same as above</td>
</tr>
<tr>
<td>SEM Offset4 ABS2 Stop Level</td>
<td>“SEM Offset4 ABS2 Stop Level”</td>
<td>Same as above</td>
</tr>
<tr>
<td>SEM Offset5 ABS2 Stop Level</td>
<td>“SEM Offset5 ABS2 Stop Level”</td>
<td>Same as above</td>
</tr>
<tr>
<td>SEM Offset6 ABS2 Stop Level</td>
<td>“SEM Offset6 ABS2 Stop Level”</td>
<td>Same as above</td>
</tr>
</tbody>
</table>
### Table 2.17-7 Parameter List Settings (SEM Measurement) (Cont’d)

<table>
<thead>
<tr>
<th>Parameter</th>
<th>Attribute Name Setting</th>
<th>Attribute Value Setting</th>
</tr>
</thead>
<tbody>
<tr>
<td>SEM Offset1 REL Start Level</td>
<td>“SEM Offset1 REL Start Level”</td>
<td>Value is described in 0.01 dBm units.</td>
</tr>
<tr>
<td>SEM Offset2 REL Start Level</td>
<td>“SEM Offset2 REL Start Level”</td>
<td>Same as above</td>
</tr>
<tr>
<td>SEM Offset3 REL Start Level</td>
<td>“SEM Offset3 REL Start Level”</td>
<td>Same as above</td>
</tr>
<tr>
<td>SEM Offset4 REL Start Level</td>
<td>“SEM Offset4 REL Start Level”</td>
<td>Same as above</td>
</tr>
<tr>
<td>SEM Offset5 REL Start Level</td>
<td>“SEM Offset5 REL Start Level”</td>
<td>Same as above</td>
</tr>
<tr>
<td>SEM Offset6 REL Start Level</td>
<td>“SEM Offset6 REL Start Level”</td>
<td>Same as above</td>
</tr>
<tr>
<td>SEM Offset1 REL Stop Level</td>
<td>“SEM Offset1 REL Stop Level”</td>
<td>Value is described in 0.01 dBm units.</td>
</tr>
<tr>
<td>SEM Offset2 REL Stop Level</td>
<td>“SEM Offset2 REL Stop Level”</td>
<td>Same as above</td>
</tr>
<tr>
<td>SEM Offset3 REL Stop Level</td>
<td>“SEM Offset3 REL Stop Level”</td>
<td>Same as above</td>
</tr>
<tr>
<td>SEM Offset4 REL Stop Level</td>
<td>“SEM Offset4 REL Stop Level”</td>
<td>Same as above</td>
</tr>
<tr>
<td>SEM Offset5 REL Stop Level</td>
<td>“SEM Offset5 REL Stop Level”</td>
<td>Same as above</td>
</tr>
<tr>
<td>SEM Offset6 REL Stop Level</td>
<td>“SEM Offset6 REL Stop Level”</td>
<td>Same as above</td>
</tr>
<tr>
<td>Parameter</td>
<td>Attribute Name Setting</td>
<td>Attribute Value Setting</td>
</tr>
<tr>
<td>---------------------------</td>
<td>---------------------------------</td>
<td>----------------------------------------------------------------</td>
</tr>
<tr>
<td>SEM Offset1 Fail Logic</td>
<td>“SEM Offset1 Fail Logic”</td>
<td>“ABS1”: ABS1</td>
</tr>
<tr>
<td></td>
<td></td>
<td>“REL”: REL</td>
</tr>
<tr>
<td></td>
<td></td>
<td>“ABS1 and REL”: ABS1 and REL</td>
</tr>
<tr>
<td></td>
<td></td>
<td>“ABS1 or REL”: ABS1 or REL</td>
</tr>
<tr>
<td></td>
<td></td>
<td>“ABS1 and ABS2”: ABS1 and ABS2</td>
</tr>
<tr>
<td></td>
<td></td>
<td>“(ABS1 and REL)
 and ABS2”</td>
</tr>
<tr>
<td></td>
<td></td>
<td>“(ABS1 or REL)
 and ABS2”</td>
</tr>
<tr>
<td></td>
<td></td>
<td>“Off”: Off</td>
</tr>
<tr>
<td>SEM Offset2 Fail Logic</td>
<td>“SEM Offset2 Fail Logic”</td>
<td>Same as above</td>
</tr>
<tr>
<td>SEM Offset3 Fail Logic</td>
<td>“SEM Offset3 Fail Logic”</td>
<td>Same as above</td>
</tr>
<tr>
<td>SEM Offset4 Fail Logic</td>
<td>“SEM Offset4 Fail Logic”</td>
<td>Same as above</td>
</tr>
<tr>
<td>SEM Offset5 Fail Logic</td>
<td>“SEM Offset5 Fail Logic”</td>
<td>Same as above</td>
</tr>
<tr>
<td>SEM Offset6 Fail Logic</td>
<td>“SEM Offset6 Fail Logic”</td>
<td>Same as above</td>
</tr>
<tr>
<td>SEM Limit Side</td>
<td>“SEM Limit Side”</td>
<td>“Both”: Both</td>
</tr>
<tr>
<td></td>
<td></td>
<td>“Upper”: Upper</td>
</tr>
<tr>
<td></td>
<td></td>
<td>“Lower”: Lower</td>
</tr>
<tr>
<td>SEM Result Type</td>
<td>“SEM Result Type”</td>
<td>“Peak”: Peak</td>
</tr>
<tr>
<td></td>
<td></td>
<td>“Margin”: Margin</td>
</tr>
</tbody>
</table>
2.17 Configuring Batch Measurement Settings

:MEASure:BATCh:SPURious[n]? <filename>[,<device>]

Spurious Emission Batch Measure

Function

This command executes Spurious Emission measurement and outputs the measurement result after the parameters described in the specified parameter list file have been set.

Query

:MEASure:BATCh:SPURious[n]? <filename>[,<device>]

Response

The same value as for :MEASure:SPURious[n]? is returned. Refer to :MEASure:SPURious[n]? for details.

Parameter

<table>
<thead>
<tr>
<th>Parameter</th>
<th>Description</th>
</tr>
</thead>
<tbody>
<tr>
<td>&lt;filename&gt;</td>
<td>Parameter list file</td>
</tr>
<tr>
<td></td>
<td>Specify with any character string enclosed by</td>
</tr>
<tr>
<td></td>
<td>double quotes (&quot;) or single quotes (').</td>
</tr>
<tr>
<td>&lt;device&gt;</td>
<td>Drive name</td>
</tr>
<tr>
<td></td>
<td>A,B,D,E,F,...</td>
</tr>
<tr>
<td></td>
<td>D drive is used when omitted.</td>
</tr>
</tbody>
</table>

Details

SPURious Emission measurement is executed and the result is output after the parameters described in the specified parameter list have been set.

The return values of this function vary depending on the result mode. (cf. :SYStem:RESult:MODE)

Place the parameter list files in the following folder on the specified drive.
<device>:\Anritsu Corporation\Signal Analyzer\User Data\Batch

If the parameter list file has been changed, the changes must be applied with the :MMEMory:RELoad:BATCh command. (cf. :MMEMory:RELoad:BATCh)
Example of Use

To acquire the measurement result of Spurious Emission measurement using the MyParam.xls parameter list file (when Result Mode = A, Spurious Emission Result Type = Worst)

FETC:SPUR? "MyParam.xml"

> 0,1,1,135618.00,−64.25,51.25,−13.00,0,2,2,155970.00,−63.91,50.91,−13.00,0.....

Parameter list format

Table 2.17-8 lists the parameter list example.
### Table 2.17-8 Parameter List Example (Spurious Emission Measurement)

```xml
<?xml version="1.0" encoding="UTF-8"?>
<!-- System Template XML Parameter -->
<SignalAnalyzerProject>
  <ProjectDefine>
    <Attribute Name="Type" Value="Application" />
    <Attribute Name="Name" Value="Batch Parameter List" />
    <Attribute Name="FileVersion" Value="1.0.0.0" />
  </ProjectDefine>
  <Params>
    <SystemTemplate>
      <Attribute Name="ListString" Value="SE1" />
      <Attribute Name="CommandArg" Value="SE1" />
      <Attribute Name="AcpDefault" Value="SE1" />
    </SystemTemplate>
    <SeParams Name="SE1">
      <ParamDefine>
        <Attribute Name="ListString" Value="SE1" />
        <Attribute Name="CommandArg" Value="SE1" />
      </ParamDefine>
      <CommonParams>
        <Attribute Name="Spurious Result Type" Value="Worst" />
        <Attribute Name="Spurious Time Domain Measurement" Value="Off" />
        <Attribute Name="Spurious Fail Stop" Value="Off" />
        <Attribute Name="Spurious Couple Storage Count" Value="On" />
        <Attribute Name="Spurious Segment Switch1" Value="On" />
        <Attribute Name="Spurious Segment Switch2" Value="On" />
        <Attribute Name="Spurious Segment Switch3" Value="On" />
        <Attribute Name="Spurious Segment Switch4" Value="On" />
        <Attribute Name="Spurious Segment Switch5" Value="Off" />
        <Attribute Name="Spurious Segment Switch6" Value="Off" />
        <Attribute Name="Spurious Segment Switch7" Value="Off" />
        <Attribute Name="Spurious Segment Switch8" Value="Off" />
        <Attribute Name="Spurious Segment Switch9" Value="Off" />
        <Attribute Name="Spurious Segment Switch10" Value="Off" />
        <Attribute Name="Spurious Segment Switch11" Value="Off" />
        <Attribute Name="Spurious Segment Switch12" Value="Off" />
        <Attribute Name="Spurious Segment Switch13" Value="Off" />
        <Attribute Name="Spurious Segment Switch14" Value="Off" />
        <Attribute Name="Spurious Segment Switch15" Value="Off" />
        <Attribute Name="Spurious Segment Switch16" Value="Off" />
        <Attribute Name="Spurious Segment Switch17" Value="Off" />
      </CommonParams>
    </SeParams>
  </Params>
</SignalAnalyzerProject>
```
Table 2.17-8 Parameter List Example (Spurious Emission Measurement) (Cont'd)

<table>
<thead>
<tr>
<th>Attribute Name</th>
<th>Value</th>
</tr>
</thead>
<tbody>
<tr>
<td>Spurious Segment Switch18</td>
<td>Off</td>
</tr>
<tr>
<td>Spurious Segment Switch19</td>
<td>Off</td>
</tr>
<tr>
<td>Spurious Segment Switch20</td>
<td>Off</td>
</tr>
<tr>
<td>Spurious Start Freq1</td>
<td>9000</td>
</tr>
<tr>
<td>Spurious Start Freq2</td>
<td>150000</td>
</tr>
<tr>
<td>Spurious Start Freq3</td>
<td>30000000</td>
</tr>
<tr>
<td>Spurious Start Freq4</td>
<td>1000000000</td>
</tr>
<tr>
<td>Spurious Stop Freq1</td>
<td>150000</td>
</tr>
<tr>
<td>Spurious Stop Freq2</td>
<td>30000000</td>
</tr>
<tr>
<td>Spurious Stop Freq3</td>
<td>1000000000</td>
</tr>
<tr>
<td>Spurious Stop Freq4</td>
<td>2000000000</td>
</tr>
<tr>
<td>Spurious RBW Switch1</td>
<td>Manual</td>
</tr>
<tr>
<td>Spurious RBW Switch2</td>
<td>Manual</td>
</tr>
<tr>
<td>Spurious RBW Switch3</td>
<td>Manual</td>
</tr>
<tr>
<td>Spurious RBW Switch4</td>
<td>Manual</td>
</tr>
<tr>
<td>Spurious RBW1</td>
<td>1kHz</td>
</tr>
<tr>
<td>Spurious RBW2</td>
<td>10kHz</td>
</tr>
<tr>
<td>Spurious RBW3</td>
<td>100kHz</td>
</tr>
<tr>
<td>Spurious RBW4</td>
<td>1MHz</td>
</tr>
<tr>
<td>Spurious VBW Switch1</td>
<td>Auto</td>
</tr>
<tr>
<td>Spurious VBW Switch2</td>
<td>Auto</td>
</tr>
<tr>
<td>Spurious VBW Switch3</td>
<td>Auto</td>
</tr>
<tr>
<td>Spurious VBW Switch4</td>
<td>Auto</td>
</tr>
<tr>
<td>Spurious Sweep Time Switch1</td>
<td>Auto</td>
</tr>
<tr>
<td>Spurious Sweep Time Switch2</td>
<td>Auto</td>
</tr>
<tr>
<td>Spurious Sweep Time Switch3</td>
<td>Auto</td>
</tr>
<tr>
<td>Spurious Sweep Time Switch4</td>
<td>Auto</td>
</tr>
<tr>
<td>Spurious Detection1</td>
<td>Positive</td>
</tr>
<tr>
<td>Spurious Detection2</td>
<td>Positive</td>
</tr>
<tr>
<td>Spurious Detection3</td>
<td>Positive</td>
</tr>
<tr>
<td>Spurious Detection4</td>
<td>Positive</td>
</tr>
<tr>
<td>Spurious Trace Point1</td>
<td>1001</td>
</tr>
<tr>
<td>Spurious Trace Point2</td>
<td>5001</td>
</tr>
<tr>
<td>Spurious Trace Point3</td>
<td>10001</td>
</tr>
<tr>
<td>Spurious Trace Point4</td>
<td>10001</td>
</tr>
<tr>
<td>Spurious Limit Start Level1</td>
<td>-1300</td>
</tr>
<tr>
<td>Spurious Limit Start Level2</td>
<td>-1300</td>
</tr>
<tr>
<td>Spurious Limit Start Level3</td>
<td>-1300</td>
</tr>
<tr>
<td>Spurious Limit Start Level4</td>
<td>-1300</td>
</tr>
</tbody>
</table>
### Table 2.17-8  Parameter List Example (Spurious Emission Measurement) (Cont’d)

<table>
<thead>
<tr>
<th>Attribute Name</th>
<th>Value</th>
</tr>
</thead>
<tbody>
<tr>
<td>Spurious Limit Stop Level Mode1</td>
<td>Auto</td>
</tr>
<tr>
<td>Spurious Limit Stop Level Mode2</td>
<td>Auto</td>
</tr>
<tr>
<td>Spurious Limit Stop Level Mode3</td>
<td>Auto</td>
</tr>
<tr>
<td>Spurious Limit Stop Level Mode4</td>
<td>Auto</td>
</tr>
</tbody>
</table>

Describe the setting parameters in the part enclosed between the CommonParams elements. The description method consists in describing the parameter name to be set in the Name attribute in the Attribute element, and the setting value in Value. The parts in bold characters in Table 2.17-8 are an actual setting example. Describe all other parts the same as in Table 2.17-8.

Since the settings are done in sequence from the top, be careful about the description order when setting parameters that have relationships of dependence. Also, if a value that is either out of the setting range or that cannot be set has been input, that setting is ignored.
Table 2.17-9  Parameter List Settings (Spurious Emission Measurement)

<table>
<thead>
<tr>
<th>Parameter</th>
<th>Attribute Name Setting</th>
<th>Attribute Value Setting</th>
</tr>
</thead>
<tbody>
<tr>
<td>Reference Level</td>
<td>“Reference Level”</td>
<td>Value is described in dBm units.</td>
</tr>
</tbody>
</table>
| Reference Level Offset      | “Reference Level Offset”     | “On”: On  
“Off”: Off                                             |
| Reference Level Offset Value| “Reference Level Offset Value”| Value is described in 0.01 dB units.                        |
| Storage Mode                | “Storage Mode A”             | “Lin Average”: Lin Average  
“Average”: Average  
“Max Hold”: Max Hold  
“Min Hold”: Min Hold  
“Off”: Off                  |
| Trigger Switch              | “Trigger Switch”             | “Off”: Off  
“On”: On                                                   |
| Trigger Source              | “Trigger Source”             | “Video”: Video  
“External”: External  
“SG Marker”: SG Marker  
“Wide IF Video”: Wide IF Video  
“BBIF”: BBIF                                                 |
| Trigger Slope               | “Trigger Slope”              | “Rise”: Rise  
“Fall”: Fall                                                |
| Trigger Level (Video)       | “Trigger Level (Video) Log”  | Value is described in dBm units.                            |
| Trigger Level (Wide IF Video)| “Trigger Level (Wide)”     | Value is described in dBm units.                            |
| Gate Sweep                  | “Gate Sweep”                 | “Off”: Off  
“On”: On                                                    |
| Gate Source                 | “Gate Source”                | “External”: External  
“SG Marker”: SG Marker  
“Wide IF Video”: Wide IF Video  
“BBIF”: BBIF                                                 |
| Gate Delay                  | “Gate Delay”                 | Value is described in ns units.                             |
| Gate Length                 | “Gate Length”                | Value is described in ns units.                             |
| Gate Level (Wide IF Video)  | “Gate Level (Wide)”          | Value is described in dBm units.                            |
| Gate Slope                  | “Gate Slope”                 | “Rise”: Rise  
“Fall”: Fall                                                |
<table>
<thead>
<tr>
<th>Parameter</th>
<th>Attribute Name Setting</th>
<th>Attribute Value Setting</th>
</tr>
</thead>
<tbody>
<tr>
<td>Pre-amp</td>
<td>“Pre-amp”</td>
<td>“Off”: Off “On”: On</td>
</tr>
<tr>
<td>VBW Mode</td>
<td>“VBW Mode”</td>
<td>“Power”: Power “Video”: Video</td>
</tr>
<tr>
<td>OBW Method</td>
<td>“OBW Method”</td>
<td>“N%”: N% “XdB”: XdB</td>
</tr>
<tr>
<td>Spurious Result Type</td>
<td>“Spurious Result Type”</td>
<td>“Worst”: Worst “Peaks”: Peaks</td>
</tr>
<tr>
<td>Spurious Fail Stop</td>
<td>“Spurious Fail Stop”</td>
<td>“Off”: Off “On”: On</td>
</tr>
<tr>
<td>Spurious Couple Storage Count</td>
<td>“Spurious Couple Storage Count”</td>
<td>“Off”: Off “On”: On</td>
</tr>
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### Table 2.17-9  Parameter List Settings (Spurious Emission Measurement) (Cont’d)

<table>
<thead>
<tr>
<th>Parameter</th>
<th>Attribute Name Setting</th>
<th>Attribute Value Setting</th>
</tr>
</thead>
<tbody>
<tr>
<td>Spurious Segment 1 On/Off</td>
<td>“Spurious Segment Switch1”</td>
<td>“Off”: Off</td>
</tr>
<tr>
<td></td>
<td></td>
<td>“On”: On</td>
</tr>
<tr>
<td>Spurious Segment 2 On/Off</td>
<td>“Spurious Segment Switch2”</td>
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<tr>
<td>Spurious Segment 3 On/Off</td>
<td>“Spurious Segment Switch3”</td>
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<td>Spurious Segment 4 On/Off</td>
<td>“Spurious Segment Switch4”</td>
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<td>Spurious Segment 5 On/Off</td>
<td>“Spurious Segment Switch5”</td>
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<td>Spurious Segment 6 On/Off</td>
<td>“Spurious Segment Switch6”</td>
<td>Same as above</td>
</tr>
<tr>
<td>Spurious Segment 7 On/Off</td>
<td>“Spurious Segment Switch7”</td>
<td>Same as above</td>
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<tr>
<td>Spurious Segment 8 On/Off</td>
<td>“Spurious Segment Switch8”</td>
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<td>Spurious Segment 9 On/Off</td>
<td>“Spurious Segment Switch9”</td>
<td>Same as above</td>
</tr>
<tr>
<td>Spurious Segment10 On/Off</td>
<td>“Spurious Segment Switch10”</td>
<td>Same as above</td>
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<tr>
<td>Spurious Segment11 On/Off</td>
<td>“Spurious Segment Switch11”</td>
<td>Same as above</td>
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<tr>
<td>Spurious Segment12 On/Off</td>
<td>“Spurious Segment Switch12”</td>
<td>Same as above</td>
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<td>Spurious Segment13 On/Off</td>
<td>“Spurious Segment Switch13”</td>
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<tr>
<td>Spurious Segment14 On/Off</td>
<td>“Spurious Segment Switch14”</td>
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<tr>
<td>Spurious Segment15 On/Off</td>
<td>“Spurious Segment Switch15”</td>
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<td>Spurious Segment16 On/Off</td>
<td>“Spurious Segment Switch16”</td>
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<td>Spurious Segment17 On/Off</td>
<td>“Spurious Segment Switch17”</td>
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<td>Spurious Segment18 On/Off</td>
<td>“Spurious Segment Switch18”</td>
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<tr>
<td>Spurious Segment19 On/Off</td>
<td>“Spurious Segment Switch19”</td>
<td>Same as above</td>
</tr>
<tr>
<td>Spurious Segment20 On/Off</td>
<td>“Spurious Segment Switch20”</td>
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Table 2.17-9  Parameter List Settings (Spurious Emission Measurement) (Cont’d)

<table>
<thead>
<tr>
<th>Parameter</th>
<th>Attribute Name Setting</th>
<th>Attribute Value Setting</th>
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<tbody>
<tr>
<td>Spurious Segment1 Start Freq</td>
<td>“Spurious Start Freq1”</td>
<td>Value is described in Hz units.</td>
</tr>
<tr>
<td>Spurious Segment2 Start Freq</td>
<td>“Spurious Start Freq2”</td>
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<td>Spurious Segment4 Start Freq</td>
<td>“Spurious Start Freq4”</td>
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<td>Spurious Segment5 Start Freq</td>
<td>“Spurious Start Freq5”</td>
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<tr>
<td>Spurious Segment6 Start Freq</td>
<td>“Spurious Start Freq6”</td>
<td>Same as above</td>
</tr>
<tr>
<td>Spurious Segment7 Start Freq</td>
<td>“Spurious Start Freq7”</td>
<td>Same as above</td>
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<tr>
<td>Spurious Segment8 Start Freq</td>
<td>“Spurious Start Freq8”</td>
<td>Same as above</td>
</tr>
<tr>
<td>Spurious Segment9 Start Freq</td>
<td>“Spurious Start Freq9”</td>
<td>Same as above</td>
</tr>
<tr>
<td>Spurious Segment10 Start Freq</td>
<td>“Spurious Start Freq10”</td>
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<tr>
<td>Spurious Segment11 Start Freq</td>
<td>“Spurious Start Freq11”</td>
<td>Same as above</td>
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<td>Spurious Segment12 Start Freq</td>
<td>“Spurious Start Freq12”</td>
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<tr>
<td>Spurious Segment13 Start Freq</td>
<td>“Spurious Start Freq13”</td>
<td>Same as above</td>
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<td>Spurious Segment14 Start Freq</td>
<td>“Spurious Start Freq14”</td>
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<td>Spurious Segment15 Start Freq</td>
<td>“Spurious Start Freq15”</td>
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<td>Spurious Segment16 Start Freq</td>
<td>“Spurious Start Freq16”</td>
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<tr>
<td>Spurious Segment17 Start Freq</td>
<td>“Spurious Start Freq17”</td>
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<tr>
<td>Spurious Segment18 Start Freq</td>
<td>“Spurious Start Freq18”</td>
<td>Same as above</td>
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<td>Spurious Segment19 Start Freq</td>
<td>“Spurious Start Freq19”</td>
<td>Same as above</td>
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<td>Spurious Segment20 Start Freq</td>
<td>“Spurious Start Freq20”</td>
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Table 2.17-9  Parameter List Settings (Spurious Emission Measurement) (Cont’d)

<table>
<thead>
<tr>
<th>Parameter</th>
<th>Attribute Name Setting</th>
<th>Attribute Value Setting</th>
</tr>
</thead>
<tbody>
<tr>
<td>Spurious Segment1 Stop Freq1</td>
<td>“Spurious Stop Freq1”</td>
<td>Value is described in Hz units.</td>
</tr>
<tr>
<td>Spurious Segment2 Stop Freq1</td>
<td>“Spurious Stop Freq2”</td>
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</tr>
<tr>
<td>Spurious Segment3 Stop Freq1</td>
<td>“Spurious Stop Freq3”</td>
<td>Same as above</td>
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<tr>
<td>Spurious Segment4 Stop Freq1</td>
<td>“Spurious Stop Freq4”</td>
<td>Same as above</td>
</tr>
<tr>
<td>Spurious Segment5 Stop Freq1</td>
<td>“Spurious Stop Freq5”</td>
<td>Same as above</td>
</tr>
<tr>
<td>Spurious Segment6 Stop Freq1</td>
<td>“Spurious Stop Freq6”</td>
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<tr>
<td>Spurious Segment7 Stop Freq1</td>
<td>“Spurious Stop Freq7”</td>
<td>Same as above</td>
</tr>
<tr>
<td>Spurious Segment8 Stop Freq1</td>
<td>“Spurious Stop Freq8”</td>
<td>Same as above</td>
</tr>
<tr>
<td>Spurious Segment9 Stop Freq1</td>
<td>“Spurious Stop Freq9”</td>
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<td>Spurious Segment10 Stop Freq1</td>
<td>“Spurious Stop Freq10”</td>
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<td>Spurious Segment11 Stop Freq1</td>
<td>“Spurious Stop Freq11”</td>
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<td>Spurious Segment12 Stop Freq1</td>
<td>“Spurious Stop Freq12”</td>
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<td>Spurious Segment13 Stop Freq1</td>
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<td>Spurious Segment14 Stop Freq1</td>
<td>“Spurious Stop Freq14”</td>
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<tr>
<td>Spurious Segment15 Stop Freq1</td>
<td>“Spurious Stop Freq15”</td>
<td>Same as above</td>
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<td>Spurious Segment16 Stop Freq1</td>
<td>“Spurious Stop Freq16”</td>
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<tr>
<td>Spurious Segment17 Stop Freq1</td>
<td>“Spurious Stop Freq17”</td>
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<td>Spurious Segment18 Stop Freq1</td>
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<td>Spurious Segment19 Stop Freq1</td>
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<td>Spurious Segment20 Stop Freq1</td>
<td>“Spurious Stop Freq20”</td>
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### Table 2.17-9 Parameter List Settings (Spurious Emission Measurement) (Cont’d)

<table>
<thead>
<tr>
<th>Parameter</th>
<th>Attribute Name Setting</th>
<th>Attribute Value Setting</th>
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<tbody>
<tr>
<td>Spurious Segment 1 Reference Level</td>
<td>“Spurious Reference Level1”</td>
<td>Value is described in dBm units.</td>
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<td>Spurious Segment 2 Reference Level</td>
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<td>Spurious Segment 3 Reference Level</td>
<td>“Spurious Reference Level3”</td>
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<td>“Spurious Reference Level4”</td>
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</tr>
<tr>
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<td>“Spurious Reference Level6”</td>
<td>Same as above</td>
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<tr>
<td>Spurious Segment 7 Reference Level</td>
<td>“Spurious Reference Level7”</td>
<td>Same as above</td>
</tr>
<tr>
<td>Spurious Segment 8 Reference Level</td>
<td>“Spurious Reference Level8”</td>
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<tr>
<td>Spurious Segment 9 Reference Level</td>
<td>“Spurious Reference Level9”</td>
<td>Same as above</td>
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<td>Spurious Segment 10 Reference Level</td>
<td>“Spurious Reference Level10”</td>
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<td>Spurious Segment 11 Reference Level</td>
<td>“Spurious Reference Level11”</td>
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<td>Spurious Segment 12 Reference Level</td>
<td>“Spurious Reference Level12”</td>
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<td>Spurious Segment 13 Reference Level</td>
<td>“Spurious Reference Level13”</td>
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<td>“Spurious Reference Level15”</td>
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<td>Spurious Segment 16 Reference Level</td>
<td>“Spurious Reference Level16”</td>
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<td>Spurious Segment 17 Reference Level</td>
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<td>Spurious Segment 18 Reference Level</td>
<td>“Spurious Reference Level18”</td>
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<td>Spurious Segment 19 Reference Level</td>
<td>“Spurious Reference Level19”</td>
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<td>Spurious Segment 20 Reference Level</td>
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Table 2.17-9 Parameter List Settings (Spurious Emission Measurement) (Cont’d)

<table>
<thead>
<tr>
<th>Parameter</th>
<th>Attribute Name Setting</th>
<th>Attribute Value Setting</th>
</tr>
</thead>
<tbody>
<tr>
<td>Spurious Segment 1</td>
<td>&quot;Spurious Attenuator Switch1&quot;</td>
<td>&quot;Auto&quot;: Auto &quot;Manual&quot;: Manual</td>
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<tr>
<td>Attenuator Auto/Manual</td>
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<td></td>
</tr>
<tr>
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<td>&quot;Spurious Attenuator Switch2&quot;</td>
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<td>Attenuator Auto/Manual</td>
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<td>Attenuator Auto/Manual</td>
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<td>Spurious Segment 5</td>
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<td>Attenuator Auto/Manual</td>
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### Table 2.17-9  Parameter List Settings (Spurious Emission Measurement) (Cont’d)

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<th>Parameter</th>
<th>Attribute Name Setting</th>
<th>Attribute Value Setting</th>
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<tbody>
<tr>
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<td>“Spurious Attenuator1”</td>
<td>Value is described in dB units.</td>
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<td>Spurious Segment2 Attenuator</td>
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<td>Spurious Segment3 Attenuator</td>
<td>“Spurious Attenuator3”</td>
<td>Same as above</td>
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<tr>
<td>Spurious Segment4 Attenuator</td>
<td>“Spurious Attenuator4”</td>
<td>Same as above</td>
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<tr>
<td>Spurious Segment5 Attenuator</td>
<td>“Spurious Attenuator5”</td>
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<tr>
<td>Spurious Segment6 Attenuator</td>
<td>“Spurious Attenuator6”</td>
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<td>Spurious Segment7 Attenuator</td>
<td>“Spurious Attenuator7”</td>
<td>Same as above</td>
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<td>Spurious Segment8 Attenuator</td>
<td>“Spurious Attenuator8”</td>
<td>Same as above</td>
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<td>“Spurious Attenuator9”</td>
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### Table 2.17-9 Parameter List Settings (Spurious Emission Measurement) (Cont’d)

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Table 2.17-9  Parameter List Settings (Spurious Emission Measurement) (Cont’d)

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### Table 2.17-9  Parameter List Settings (Spurious Emission Measurement) (Cont’d)

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Table 2.17-9  Parameter List Settings (Spurious Emission Measurement) (Cont’d)

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</tr>
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<td>Spurious Segment18 VBW</td>
<td>“Spurious VBW18”</td>
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<td>Spurious Segment19 VBW</td>
<td>“Spurious VBW19”</td>
<td>Same as above</td>
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<tr>
<td>Spurious Segment20 VBW</td>
<td>“Spurious VBW20”</td>
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### Table 2.17-9 Parameter List Settings (Spurious Emission Measurement) (Cont’d)

<table>
<thead>
<tr>
<th>Parameter</th>
<th>Attribute Name Setting</th>
<th>Attribute Value Setting</th>
</tr>
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<tr>
<td>Sweep Time Auto/Manual</td>
<td></td>
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</tr>
<tr>
<td>Spurious Segment2</td>
<td>“Spurious Sweep Time Switch2”</td>
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<td>“Spurious Sweep Time Switch10”</td>
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<td>Spurious Segment11</td>
<td>“Spurious Sweep Time Switch11”</td>
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<td>Sweep Time Auto/Manual</td>
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<td></td>
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<td>Spurious Segment12</td>
<td>“Spurious Sweep Time Switch12”</td>
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<tr>
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<td>“Spurious Sweep Time Switch14”</td>
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<td>Spurious Segment15</td>
<td>“Spurious Sweep Time Switch15”</td>
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<td></td>
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<td>“Spurious Sweep Time Switch16”</td>
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<td>Sweep Time Auto/Manual</td>
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<td>Spurious Segment20</td>
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<td>Sweep Time Auto/Manual</td>
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### Table 2.17-9 Parameter List Settings (Spurious Emission Measurement) (Cont’d)

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<tr>
<th>Parameter</th>
<th>Attribute Name Setting</th>
<th>Attribute Value Setting</th>
</tr>
</thead>
<tbody>
<tr>
<td>Spurious Segment 1 Sweep Time</td>
<td>“Spurious Sweep Time1”</td>
<td>Value is described in ms units.</td>
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<tr>
<td>Spurious Segment 3 Sweep Time</td>
<td>“Spurious Sweep Time3”</td>
<td>Same as above</td>
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<tr>
<td>Spurious Segment 4 Sweep Time</td>
<td>“Spurious Sweep Time4”</td>
<td>Same as above</td>
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<tr>
<td>Spurious Segment 5 Sweep Time</td>
<td>“Spurious Sweep Time5”</td>
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<tr>
<td>Spurious Segment 6 Sweep Time</td>
<td>“Spurious Sweep Time6”</td>
<td>Same as above</td>
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<td>Spurious Segment 7 Sweep Time</td>
<td>“Spurious Sweep Time7”</td>
<td>Same as above</td>
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<td>Spurious Segment 8 Sweep Time</td>
<td>“Spurious Sweep Time8”</td>
<td>Same as above</td>
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<td>Spurious Segment 9 Sweep Time</td>
<td>“Spurious Sweep Time9”</td>
<td>Same as above</td>
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<tr>
<td>Spurious Segment 10 Sweep Time</td>
<td>“Spurious Sweep Time10”</td>
<td>Same as above</td>
</tr>
<tr>
<td>Spurious Segment 11 Sweep Time</td>
<td>“Spurious Sweep Time11”</td>
<td>Same as above</td>
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<tr>
<td>Spurious Segment 12 Sweep Time</td>
<td>“Spurious Sweep Time12”</td>
<td>Same as above</td>
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<tr>
<td>Spurious Segment 13 Sweep Time</td>
<td>“Spurious Sweep Time13”</td>
<td>Same as above</td>
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<td>Spurious Segment 14 Sweep Time</td>
<td>“Spurious Sweep Time14”</td>
<td>Same as above</td>
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<td>Spurious Segment 15 Sweep Time</td>
<td>“Spurious Sweep Time15”</td>
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<td>Spurious Segment 16 Sweep Time</td>
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<td>Spurious Segment 17 Sweep Time</td>
<td>“Spurious Sweep Time17”</td>
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<td>Spurious Segment 18 Sweep Time</td>
<td>“Spurious Sweep Time18”</td>
<td>Same as above</td>
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<tr>
<td>Spurious Segment 19 Sweep Time</td>
<td>“Spurious Sweep Time19”</td>
<td>Same as above</td>
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<tr>
<td>Spurious Segment 20 Sweep Time</td>
<td>“Spurious Sweep Time20”</td>
<td>Same as above</td>
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<tr>
<td>Parameter</td>
<td>Attribute Name Setting</td>
<td>Attribute Value Setting</td>
</tr>
<tr>
<td>----------------------------</td>
<td>-------------------------------------</td>
<td>-------------------------------</td>
</tr>
<tr>
<td>Spurious Segment 1</td>
<td>“Spurious Pause before Sweep 1”</td>
<td>“Off”: Off “On”: On</td>
</tr>
<tr>
<td>Pause before Sweep</td>
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<tr>
<td>Spurious Segment 2</td>
<td>“Spurious Pause before Sweep 2”</td>
<td>Same as above</td>
</tr>
<tr>
<td>Pause before Sweep</td>
<td></td>
<td></td>
</tr>
<tr>
<td>Spurious Segment 3</td>
<td>“Spurious Pause before Sweep 3”</td>
<td>Same as above</td>
</tr>
<tr>
<td>Pause before Sweep</td>
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</tr>
<tr>
<td>Spurious Segment 4</td>
<td>“Spurious Pause before Sweep 4”</td>
<td>Same as above</td>
</tr>
<tr>
<td>Pause before Sweep</td>
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<td></td>
</tr>
<tr>
<td>Spurious Segment 5</td>
<td>“Spurious Pause before Sweep 5”</td>
<td>Same as above</td>
</tr>
<tr>
<td>Pause before Sweep</td>
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<tr>
<td>Spurious Segment 6</td>
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<tr>
<td>Pause before Sweep</td>
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<td></td>
</tr>
<tr>
<td>Spurious Segment 7</td>
<td>“Spurious Pause before Sweep 7”</td>
<td>Same as above</td>
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<tr>
<td>Pause before Sweep</td>
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<td></td>
</tr>
<tr>
<td>Spurious Segment 8</td>
<td>“Spurious Pause before Sweep 8”</td>
<td>Same as above</td>
</tr>
<tr>
<td>Pause before Sweep</td>
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<td>Spurious Segment 9</td>
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<td>Pause before Sweep</td>
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<tr>
<td>Spurious Segment 10</td>
<td>“Spurious Pause before Sweep 10”</td>
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<td>Pause before Sweep</td>
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<td>Spurious Segment 11</td>
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<td>Pause before Sweep</td>
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<td>Spurious Segment 12</td>
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<td>Pause before Sweep</td>
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<td>Spurious Segment 13</td>
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<td>Pause before Sweep</td>
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<td>Pause before Sweep</td>
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<td>Pause before Sweep</td>
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<td></td>
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<td>Spurious Segment 16</td>
<td>“Spurious Pause before Sweep 16”</td>
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<td>Pause before Sweep</td>
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<tr>
<td>Spurious Segment 17</td>
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<td>Pause before Sweep</td>
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<td>Pause before Sweep</td>
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<tr>
<td>Spurious Segment 20</td>
<td>“Spurious Pause before Sweep 20”</td>
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<tr>
<td>Pause before Sweep</td>
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### 2.17 Configuring Batch Measurement Settings

#### Table 2.17-9 Parameter List Settings (Spurious Emission Measurement) (Cont’d)

<table>
<thead>
<tr>
<th>Parameter</th>
<th>Attribute Name Setting</th>
<th>Attribute Value Setting</th>
</tr>
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<tbody>
<tr>
<td>Spurious Segment1 Preamp</td>
<td>“Spurious Preamp1”</td>
<td>“Off”: Off “On”: On</td>
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<tr>
<td>Spurious Segment2 Preamp</td>
<td>“Spurious Preamp2”</td>
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</tr>
<tr>
<td>Spurious Segment3 Preamp</td>
<td>“Spurious Preamp3”</td>
<td>Same as above</td>
</tr>
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<td>Spurious Segment4 Preamp</td>
<td>“Spurious Preamp4”</td>
<td>Same as above</td>
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<tr>
<td>Spurious Segment5 Preamp</td>
<td>“Spurious Preamp5”</td>
<td>Same as above</td>
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<td>Spurious Segment6 Preamp</td>
<td>“Spurious Preamp6”</td>
<td>Same as above</td>
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<tr>
<td>Spurious Segment7 Preamp</td>
<td>“Spurious Preamp7”</td>
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<td>Spurious Segment8 Preamp</td>
<td>“Spurious Preamp8”</td>
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<td>Spurious Segment9 Preamp</td>
<td>“Spurious Preamp9”</td>
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<td>Spurious Segment10 Preamp</td>
<td>“Spurious Preamp10”</td>
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</tr>
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<td>Spurious Segment11 Preamp</td>
<td>“Spurious Preamp11”</td>
<td>Same as above</td>
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<td>Spurious Segment12 Preamp</td>
<td>“Spurious Preamp12”</td>
<td>Same as above</td>
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<td>Spurious Segment13 Preamp</td>
<td>“Spurious Preamp13”</td>
<td>Same as above</td>
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<td>Spurious Segment14 Preamp</td>
<td>“Spurious Preamp14”</td>
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<td>Spurious Segment15 Preamp</td>
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<td>“Spurious Preamp16”</td>
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<td>Spurious Segment17 Preamp</td>
<td>“Spurious Preamp17”</td>
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<td>“Spurious Preamp18”</td>
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<td>Spurious Segment19 Preamp</td>
<td>“Spurious Preamp19”</td>
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<td>Spurious Segment20 Preamp</td>
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Table 2.17-9  Parameter List Settings (Spurious Emission Measurement) (Cont’d)

<table>
<thead>
<tr>
<th>Parameter</th>
<th>Attribute Name Setting</th>
<th>Attribute Value Setting</th>
</tr>
</thead>
<tbody>
<tr>
<td>Spurious Segment1 Detection</td>
<td>“Spurious Detection1”</td>
<td>“Pos &amp; Neg”: Positive, Negative “Sample” Sample “RMS” RMS</td>
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<td>Spurious Segment2 Detection</td>
<td>“Spurious Detection2”</td>
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<tr>
<td>Spurious Segment3 Detection</td>
<td>“Spurious Detection3”</td>
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</tr>
<tr>
<td>Spurious Segment4 Detection</td>
<td>“Spurious Detection4”</td>
<td>Same as above</td>
</tr>
<tr>
<td>Spurious Segment5 Detection</td>
<td>“Spurious Detection5”</td>
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<td>Spurious Segment6 Detection</td>
<td>“Spurious Detection6”</td>
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<td>Spurious Segment7 Detection</td>
<td>“Spurious Detection7”</td>
<td>Same as above</td>
</tr>
<tr>
<td>Spurious Segment8 Detection</td>
<td>“Spurious Detection8”</td>
<td>Same as above</td>
</tr>
<tr>
<td>Spurious Segment9 Detection</td>
<td>“Spurious Detection9”</td>
<td>Same as above</td>
</tr>
<tr>
<td>Spurious Segment10 Detection</td>
<td>“Spurious Detection10”</td>
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</tr>
<tr>
<td>Spurious Segment11 Detection</td>
<td>“Spurious Detection11”</td>
<td>Same as above</td>
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<tr>
<td>Spurious Segment12 Detection</td>
<td>“Spurious Detection12”</td>
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<td>Spurious Segment13 Detection</td>
<td>“Spurious Detection13”</td>
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<td>“Spurious Detection14”</td>
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<td>“Spurious Detection15”</td>
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<td>Spurious Segment17 Detection</td>
<td>“Spurious Detection17”</td>
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<td>“Spurious Detection18”</td>
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<td>Spurious Segment19 Detection</td>
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<tr>
<td>Spurious Segment20 Detection</td>
<td>“Spurious Detection20”</td>
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### Table 2.17-9 Parameter List Settings (Spurious Emission Measurement) (Cont’d)

<table>
<thead>
<tr>
<th>Parameter</th>
<th>Attribute Name Setting</th>
<th>Attribute Value Setting</th>
<th>Description</th>
</tr>
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<tbody>
<tr>
<td>Spurious Segment1 Trace Point</td>
<td>“Spurious Trace Point1”</td>
<td></td>
<td>Describes the number of trace points.</td>
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<tr>
<td>Spurious Segment2 Trace Point</td>
<td>“Spurious Trace Point2”</td>
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<tr>
<td>Spurious Segment3 Trace Point</td>
<td>“Spurious Trace Point3”</td>
<td></td>
<td>Same as above</td>
</tr>
<tr>
<td>Spurious Segment4 Trace Point</td>
<td>“Spurious Trace Point4”</td>
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<td>Same as above</td>
</tr>
<tr>
<td>Spurious Segment5 Trace Point</td>
<td>“Spurious Trace Point5”</td>
<td></td>
<td>Same as above</td>
</tr>
<tr>
<td>Spurious Segment6 Trace Point</td>
<td>“Spurious Trace Point6”</td>
<td></td>
<td>Same as above</td>
</tr>
<tr>
<td>Spurious Segment7 Trace Point</td>
<td>“Spurious Trace Point7”</td>
<td></td>
<td>Same as above</td>
</tr>
<tr>
<td>Spurious Segment8 Trace Point</td>
<td>“Spurious Trace Point8”</td>
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<td>Same as above</td>
</tr>
<tr>
<td>Spurious Segment9 Trace Point</td>
<td>“Spurious Trace Point9”</td>
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<td>Spurious Segment10 Trace Point</td>
<td>“Spurious Trace Point10”</td>
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<tr>
<td>Spurious Segment11 Trace Point</td>
<td>“Spurious Trace Point11”</td>
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<td>Same as above</td>
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<tr>
<td>Spurious Segment12 Trace Point</td>
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### Table 2.17-9  Parameter List Settings (Spurious Emission Measurement) (Cont’d)

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<th>Parameter</th>
<th>Attribute Name Setting</th>
<th>Attribute Value Setting</th>
</tr>
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<tbody>
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<td>“Spurious Storage Count1”</td>
<td>Describes the storage count.</td>
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<td>Spurious Segment 2 Storage Count</td>
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<tr>
<td>Spurious Segment 3 Storage Count</td>
<td>“Spurious Storage Count3”</td>
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<td>Spurious Segment 4 Storage Count</td>
<td>“Spurious Storage Count4”</td>
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<td>“Spurious Storage Count6”</td>
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<td>“Spurious Storage Count7”</td>
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<td>Spurious Segment 9 Storage Count</td>
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<td>Spurious Segment 11 Storage Count</td>
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<td>Spurious Segment 14 Storage Count</td>
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<td>Spurious Segment 19 Storage Count</td>
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<td>Parameter</td>
<td>Attribute Name Setting</td>
<td>Attribute Value Setting</td>
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<td>“Spurious Correction Data Type4”</td>
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<td>“Spurious Correction Data Type7”</td>
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<td>Spurious Segment8 Correction</td>
<td>“Spurious Correction Data Type8”</td>
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<td>“Spurious Correction Data Type9”</td>
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<td>“Spurious Correction Data Type12”</td>
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<td>“Spurious Correction Data Type20”</td>
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Table 2.17-9  Parameter List Settings (Spurious Emission Measurement) (Cont’d)

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<tr>
<th>Parameter</th>
<th>Attribute Name Setting</th>
<th>Attribute Value Setting</th>
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<tbody>
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<td>Spurious Segment1 Limit Start Level</td>
<td>“Spurious Limit Start Level1”</td>
<td>Value is described in 0.01 dBm units.</td>
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<td>“Spurious Limit Start Level4”</td>
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<td>“Spurious Limit Start Level5”</td>
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<td>“Spurious Limit Start Level7”</td>
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<td>“Spurious Limit Start Level8”</td>
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<td>“Spurious Limit Start Level9”</td>
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<td>“Spurious Limit Start Level12”</td>
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<td>“Spurious Limit Start Level13”</td>
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<td>Spurious Segment20 Limit Start Level</td>
<td>“Spurious Limit Start Level20”</td>
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<td>Parameter</td>
<td>Attribute Name Setting</td>
<td>Attribute Value Setting</td>
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<td>“Spurious Limit Stop Level Mode4”</td>
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<td>“Spurious Limit Stop Level Mode11”</td>
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<td>Spurious Segment 12 Limit Stop Level Auto/Manual</td>
<td>“Spurious Limit Stop Level Mode12”</td>
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<td>“Spurious Limit Stop Level Mode13”</td>
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<td>“Spurious Limit Stop Level Mode18”</td>
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<td>Spurious Segment 19 Limit Stop Level Auto/Manual</td>
<td>“Spurious Limit Stop Level Mode19”</td>
<td>Same as above</td>
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<tr>
<td>Spurious Segment 20 Limit Stop Level Auto/Manual</td>
<td>“Spurious Limit Stop Level Mode20”</td>
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### Table 2.17-9 Parameter List Settings (Spurious Emission Measurement) (Cont’d)

<table>
<thead>
<tr>
<th>Parameter</th>
<th>Attribute Name Setting</th>
<th>Attribute Value Setting</th>
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<tbody>
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<td>Limit Stop Level</td>
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<td>Limit Stop Level</td>
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<td>Spurious Segment13</td>
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<td>Limit Stop Level</td>
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<td>Limit Stop Level</td>
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<td>Spurious Segment19</td>
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Table 2.17-9  Parameter List Settings (Spurious Emission Measurement) (Cont’d)

<table>
<thead>
<tr>
<th>Parameter</th>
<th>Attribute Name Setting</th>
<th>Attribute Value Setting</th>
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<tbody>
<tr>
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<td>Spurious Segment4 Search Resolution</td>
<td>“Spurious Search Resolution4”</td>
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<td>Spurious Segment6 Search Resolution</td>
<td>“Spurious Search Resolution6”</td>
<td>Same as above</td>
</tr>
<tr>
<td>Spurious Segment7 Search Resolution</td>
<td>“Spurious Search Resolution7”</td>
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Table 2.17-9  Parameter List Settings (Spurious Emission Measurement) (Cont’d)

<table>
<thead>
<tr>
<th>Parameter</th>
<th>Attribute Name Setting</th>
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### Table 2.17-9  Parameter List Settings (Spurious Emission Measurement) (Cont’d)

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Table 2.17-9  Parameter List Settings (Spurious Emission Measurement) (Cont’d)

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Table 2.17-9  Parameter List Settings (Spurious Emission Measurement) (Cont’d)

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### Table 2.17-9 Parameter List Settings (Spurious Emission Measurement) (Cont’d)

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<tr>
<td>Spurious Segment6 Time Domain VBW</td>
<td>“Spurious Time Domain VBW6”</td>
<td>Same as above</td>
</tr>
<tr>
<td>Spurious Segment7 Time Domain VBW</td>
<td>“Spurious Time Domain VBW7”</td>
<td>Same as above</td>
</tr>
<tr>
<td>Spurious Segment8 Time Domain VBW</td>
<td>“Spurious Time Domain VBW8”</td>
<td>Same as above</td>
</tr>
<tr>
<td>Spurious Segment9 Time Domain VBW</td>
<td>“Spurious Time Domain VBW9”</td>
<td>Same as above</td>
</tr>
<tr>
<td>Spurious Segment10 Time Domain VBW</td>
<td>“Spurious Time Domain VBW10”</td>
<td>Same as above</td>
</tr>
</tbody>
</table>
### Table 2.17-9 Parameter List Settings (Spurious Emission Measurement) (Cont’d)

<table>
<thead>
<tr>
<th>Parameter</th>
<th>Attribute Name Setting</th>
<th>Attribute Value Setting</th>
</tr>
</thead>
<tbody>
<tr>
<td>Spurious Segment 11 Time Domain VBW</td>
<td>“Spurious Time Domain VBW11”</td>
<td>“1Hz”: 1 Hz “3Hz”: 3 Hz “10Hz”: 10 Hz “30Hz”: 30 Hz “100Hz”: 100 Hz “300Hz”: 300 Hz “1kHz”: 1 kHz “3kHz”: 3 kHz “5kHz”: 5 kHz “10kHz”: 10 kHz “30kHz”: 30 kHz “100kHz”: 100 kHz “300kHz”: 300 kHz “1MHz”: 1 MHz “3MHz”: 3 MHz “10MHz”: 10 MHz “Off”: Off</td>
</tr>
<tr>
<td>Spurious Segment 12 Time Domain VBW</td>
<td>“Spurious Time Domain VBW12”</td>
<td>Same as above</td>
</tr>
<tr>
<td>Spurious Segment 13 Time Domain VBW</td>
<td>“Spurious Time Domain VBW13”</td>
<td>Same as above</td>
</tr>
<tr>
<td>Spurious Segment 14 Time Domain VBW</td>
<td>“Spurious Time Domain VBW14”</td>
<td>Same as above</td>
</tr>
<tr>
<td>Spurious Segment 15 Time Domain VBW</td>
<td>“Spurious Time Domain VBW15”</td>
<td>Same as above</td>
</tr>
<tr>
<td>Spurious Segment 16 Time Domain VBW</td>
<td>“Spurious Time Domain VBW16”</td>
<td>Same as above</td>
</tr>
<tr>
<td>Spurious Segment 17 Time Domain VBW</td>
<td>“Spurious Time Domain VBW17”</td>
<td>Same as above</td>
</tr>
<tr>
<td>Spurious Segment 18 Time Domain VBW</td>
<td>“Spurious Time Domain VBW18”</td>
<td>Same as above</td>
</tr>
<tr>
<td>Spurious Segment 19 Time Domain VBW</td>
<td>“Spurious Time Domain VBW19”</td>
<td>Same as above</td>
</tr>
<tr>
<td>Spurious Segment 20 Time Domain VBW</td>
<td>“Spurious Time Domain VBW20”</td>
<td>Same as above</td>
</tr>
</tbody>
</table>
### Table 2.17-9 Parameter List Settings (Spurious Emission Measurement) (Cont’d)

<table>
<thead>
<tr>
<th>Parameter</th>
<th>Attribute Name Setting</th>
<th>Attribute Value Setting</th>
</tr>
</thead>
<tbody>
<tr>
<td>Spurious Segment 1</td>
<td>“Spurious Time Domain Sweep Time1”</td>
<td>Value is described in µs units.</td>
</tr>
<tr>
<td>Time Domain Sweep Time</td>
<td></td>
<td></td>
</tr>
<tr>
<td>Spurious Segment 2</td>
<td>“Spurious Time Domain Sweep Time2”</td>
<td>Same as above</td>
</tr>
<tr>
<td>Time Domain Sweep Time</td>
<td></td>
<td></td>
</tr>
<tr>
<td>Spurious Segment 3</td>
<td>“Spurious Time Domain Sweep Time3”</td>
<td>Same as above</td>
</tr>
<tr>
<td>Time Domain Sweep Time</td>
<td></td>
<td></td>
</tr>
<tr>
<td>Spurious Segment 4</td>
<td>“Spurious Time Domain Sweep Time4”</td>
<td>Same as above</td>
</tr>
<tr>
<td>Time Domain Sweep Time</td>
<td></td>
<td></td>
</tr>
<tr>
<td>Spurious Segment 5</td>
<td>“Spurious Time Domain Sweep Time5”</td>
<td>Same as above</td>
</tr>
<tr>
<td>Time Domain Sweep Time</td>
<td></td>
<td></td>
</tr>
<tr>
<td>Spurious Segment 6</td>
<td>“Spurious Time Domain Sweep Time6”</td>
<td>Same as above</td>
</tr>
<tr>
<td>Time Domain Sweep Time</td>
<td></td>
<td></td>
</tr>
<tr>
<td>Spurious Segment 7</td>
<td>“Spurious Time Domain Sweep Time7”</td>
<td>Same as above</td>
</tr>
<tr>
<td>Time Domain Sweep Time</td>
<td></td>
<td></td>
</tr>
<tr>
<td>Spurious Segment 8</td>
<td>“Spurious Time Domain Sweep Time8”</td>
<td>Same as above</td>
</tr>
<tr>
<td>Time Domain Sweep Time</td>
<td></td>
<td></td>
</tr>
<tr>
<td>Spurious Segment 9</td>
<td>“Spurious Time Domain Sweep Time9”</td>
<td>Same as above</td>
</tr>
<tr>
<td>Time Domain Sweep Time</td>
<td></td>
<td></td>
</tr>
<tr>
<td>Spurious Segment 10</td>
<td>“Spurious Time Domain Sweep Time10”</td>
<td>Same as above</td>
</tr>
<tr>
<td>Time Domain Sweep Time</td>
<td></td>
<td></td>
</tr>
<tr>
<td>Spurious Segment 11</td>
<td>“Spurious Time Domain Sweep Time11”</td>
<td>Same as above</td>
</tr>
<tr>
<td>Time Domain Sweep Time</td>
<td></td>
<td></td>
</tr>
<tr>
<td>Spurious Segment 12</td>
<td>“Spurious Time Domain Sweep Time12”</td>
<td>Same as above</td>
</tr>
<tr>
<td>Time Domain Sweep Time</td>
<td></td>
<td></td>
</tr>
<tr>
<td>Spurious Segment 13</td>
<td>“Spurious Time Domain Sweep Time13”</td>
<td>Same as above</td>
</tr>
<tr>
<td>Time Domain Sweep Time</td>
<td></td>
<td></td>
</tr>
<tr>
<td>Spurious Segment 14</td>
<td>“Spurious Time Domain Sweep Time14”</td>
<td>Same as above</td>
</tr>
<tr>
<td>Time Domain Sweep Time</td>
<td></td>
<td></td>
</tr>
<tr>
<td>Spurious Segment 15</td>
<td>“Spurious Time Domain Sweep Time15”</td>
<td>Same as above</td>
</tr>
<tr>
<td>Time Domain Sweep Time</td>
<td></td>
<td></td>
</tr>
<tr>
<td>Spurious Segment 16</td>
<td>“Spurious Time Domain Sweep Time16”</td>
<td>Same as above</td>
</tr>
<tr>
<td>Time Domain Sweep Time</td>
<td></td>
<td></td>
</tr>
<tr>
<td>Spurious Segment 17</td>
<td>“Spurious Time Domain Sweep Time17”</td>
<td>Same as above</td>
</tr>
<tr>
<td>Time Domain Sweep Time</td>
<td></td>
<td></td>
</tr>
<tr>
<td>Spurious Segment 18</td>
<td>“Spurious Time Domain Sweep Time18”</td>
<td>Same as above</td>
</tr>
<tr>
<td>Time Domain Sweep Time</td>
<td></td>
<td></td>
</tr>
<tr>
<td>Spurious Segment 19</td>
<td>“Spurious Time Domain Sweep Time19”</td>
<td>Same as above</td>
</tr>
<tr>
<td>Time Domain Sweep Time</td>
<td></td>
<td></td>
</tr>
<tr>
<td>Spurious Segment 20</td>
<td>“Spurious Time Domain Sweep Time20”</td>
<td>Same as above</td>
</tr>
<tr>
<td>Time Domain Sweep Time</td>
<td></td>
<td></td>
</tr>
</tbody>
</table>
### Table 2.17-9 Parameter List Settings (Spurious Emission Measurement) (Cont’d)

<table>
<thead>
<tr>
<th>Parameter</th>
<th>Attribute Name Setting</th>
<th>Attribute Value Setting</th>
</tr>
</thead>
<tbody>
<tr>
<td>Spurious Segment1 Time Domain Detection</td>
<td>“Spurious Time Domain Detection1”</td>
<td>“Pos &amp; Neg”: Pos &amp; Neg “Positive”: Positive “Negative”: Negative “Sample”: Sample “RMS”: RMS</td>
</tr>
<tr>
<td>Spurious Segment2 Time Domain Detection</td>
<td>“Spurious Time Domain Detection2”</td>
<td>Same as above</td>
</tr>
<tr>
<td>Spurious Segment3 Time Domain Detection</td>
<td>“Spurious Time Domain Detection3”</td>
<td>Same as above</td>
</tr>
<tr>
<td>Spurious Segment4 Time Domain Detection</td>
<td>“Spurious Time Domain Detection4”</td>
<td>Same as above</td>
</tr>
<tr>
<td>Spurious Segment5 Time Domain Detection</td>
<td>“Spurious Time Domain Detection5”</td>
<td>Same as above</td>
</tr>
<tr>
<td>Spurious Segment6 Time Domain Detection</td>
<td>“Spurious Time Domain Detection6”</td>
<td>Same as above</td>
</tr>
<tr>
<td>Spurious Segment7 Time Domain Detection</td>
<td>“Spurious Time Domain Detection7”</td>
<td>Same as above</td>
</tr>
<tr>
<td>Spurious Segment8 Time Domain Detection</td>
<td>“Spurious Time Domain Detection8”</td>
<td>Same as above</td>
</tr>
<tr>
<td>Spurious Segment9 Time Domain Detection</td>
<td>“Spurious Time Domain Detection9”</td>
<td>Same as above</td>
</tr>
<tr>
<td>Spurious Segment10 Time Domain Detection</td>
<td>“Spurious Time Domain Detection10”</td>
<td>Same as above</td>
</tr>
</tbody>
</table>
### Table 2.17-9 Parameter List Settings (Spurious Emission Measurement) (Cont’d)

<table>
<thead>
<tr>
<th>Parameter</th>
<th>Attribute Name Setting</th>
<th>Attribute Value Setting</th>
</tr>
</thead>
<tbody>
<tr>
<td>Spurious Segment 12 Time Domain Detection</td>
<td>“Spurious Time Domain Detection12”</td>
<td>Same as above</td>
</tr>
<tr>
<td>Spurious Segment 13 Time Domain Detection</td>
<td>“Spurious Time Domain Detection13”</td>
<td>Same as above</td>
</tr>
<tr>
<td>Spurious Segment 14 Time Domain Detection</td>
<td>“Spurious Time Domain Detection14”</td>
<td>Same as above</td>
</tr>
<tr>
<td>Spurious Segment 15 Time Domain Detection</td>
<td>“Spurious Time Domain Detection15”</td>
<td>Same as above</td>
</tr>
<tr>
<td>Spurious Segment 16 Time Domain Detection</td>
<td>“Spurious Time Domain Detection16”</td>
<td>Same as above</td>
</tr>
<tr>
<td>Spurious Segment 17 Time Domain Detection</td>
<td>“Spurious Time Domain Detection17”</td>
<td>Same as above</td>
</tr>
<tr>
<td>Spurious Segment 18 Time Domain Detection</td>
<td>“Spurious Time Domain Detection18”</td>
<td>Same as above</td>
</tr>
<tr>
<td>Spurious Segment 19 Time Domain Detection</td>
<td>“Spurious Time Domain Detection19”</td>
<td>Same as above</td>
</tr>
<tr>
<td>Spurious Segment 20 Time Domain Detection</td>
<td>“Spurious Time Domain Detection20”</td>
<td>Same as above</td>
</tr>
</tbody>
</table>
:MEASure:BATCh:IM? <filename>,<spa_freq>[,<sg_freq>[,<device>]]
Transmit Intermodulation Batch Measure

Function
This command executes Transmit intermodulation measurement and
outputs the result based on the specified parameter list file.

Query
:MEASure:BATCh:IM?
<filename>,<spa_freq>[,<sg_freq>[,<device>]]

Response
Two values of ref_carrier_a are output when ACP Reference is BSIDes.
<ref_carrier_a>,<lower_offset_1_rel>,<lower_offset_1_abs>,<upper_offset_1_rel>,<upper_offset_1_abs>,<lower_offset_2_rel>,<lower_offset_2_abs>,<upper_offset_2_rel>,<upper_offset_2_abs>,<lower_offset_3_rel>,<lower_offset_3_abs>,<upper_offset_3_rel>,<upper_offset_3_abs>,<spa_1_result>,<spa_2_result>

Parameter

<table>
<thead>
<tr>
<th>Parameter</th>
<th>Description</th>
</tr>
</thead>
<tbody>
<tr>
<td>&lt;filename&gt;</td>
<td>Parameter list file. Specify with any character string enclosed by double quotes (&quot; &quot;) or single quotes (' ').</td>
</tr>
<tr>
<td>&lt;spa_freq&gt;</td>
<td>Center frequency of Spectrum Analyzer function.</td>
</tr>
<tr>
<td>Range</td>
<td>–100 MHz to +6.05 GHz (MS2690A)</td>
</tr>
<tr>
<td></td>
<td>–100 MHz to +13.6 GHz (MS2691A)</td>
</tr>
<tr>
<td></td>
<td>–100 MHz to +26.6 GHz (MS2692A)</td>
</tr>
<tr>
<td>Resolution</td>
<td>1 Hz</td>
</tr>
<tr>
<td>Suffix code</td>
<td>HZ, KHZ, KZ, MHZ, MZ, GHZ, GZ</td>
</tr>
<tr>
<td></td>
<td>Hz is used when omitted. MAXimum, MINimum and DEFault are not available.</td>
</tr>
<tr>
<td>&lt;sg_freq&gt;</td>
<td>Frequency of Signal Generator.</td>
</tr>
<tr>
<td>Range</td>
<td>125 MHz to 6 GHz</td>
</tr>
<tr>
<td>Resolution</td>
<td>0.01 Hz</td>
</tr>
<tr>
<td>Suffix code</td>
<td>HZ, KHZ, KZ, MHZ, MZ, GHZ, GZ</td>
</tr>
<tr>
<td></td>
<td>Hz is used when omitted. MAXimum, MINimum and DEFault are not available.</td>
</tr>
</tbody>
</table>
### Details

Transmit intermodulation measurement is executed and the result is output based on the specified parameter list file. Place the parameter list files in the following folder on the specified drive.

<device>:\Anritsu Corporation\Signal Analyzer\User Data\Batch

If the parameter list file has been changed, the changes must be applied with the :MMEMory:RELoad:BATCh command. (cf. :MMEMory:RELoad:BATCh)

### Example of Use

To execute Transmit intermodulation measurement using the MyParam.xls parameter list file.

```plaintext
MEAS:BATC:IM? "MyParam",2GHz,2.005GHz >
0.0,-72.130,0.0,-72.130,-1.270,-73.400,-0.570,-72.700,-0.780,-72.910,-1.030,-73.160,-999.0,-999.0,-999.0,-999.0
```
Parameter list format

Table 2.17-10 lists the parameter list example.

<table>
<thead>
<tr>
<th>Table 2.17-10  Parameter List Example (IM Measurement)</th>
</tr>
</thead>
<tbody>
<tr>
<td>&lt;?xml version=&quot;1.0&quot; encoding=&quot;UTF-8&quot;?&gt;</td>
</tr>
<tr>
<td>&lt;!-- System Template XML Parameter --&gt;</td>
</tr>
<tr>
<td>&lt;SignalAnalyzerProject&gt;</td>
</tr>
<tr>
<td>&lt;ProjectDefine&gt;</td>
</tr>
<tr>
<td>&lt;Attribute Name=&quot;Type&quot; Value=&quot;Application&quot; /&gt;</td>
</tr>
<tr>
<td>&lt;Attribute Name=&quot;Name&quot; Value=&quot;Batch Parameter List&quot; /&gt;</td>
</tr>
<tr>
<td>&lt;Attribute Name=&quot;FileVersion&quot; Value=&quot;1.0.0.0&quot; /&gt;</td>
</tr>
<tr>
<td>&lt;/ProjectDefine&gt;</td>
</tr>
<tr>
<td>&lt;Params&gt;</td>
</tr>
<tr>
<td>&lt;ImSgParams Name=&quot;SG1&quot;&gt;</td>
</tr>
<tr>
<td>&lt;CommonParams&gt;</td>
</tr>
<tr>
<td>&lt;Attribute Name=&quot;Package Name&quot; Value=&quot;W-CDMA(BS Tx Test)&quot; /&gt;</td>
</tr>
<tr>
<td>&lt;Attribute Name=&quot;Pattern Name&quot; Value=&quot;TestModel_1_16DPCH&quot; /&gt;</td>
</tr>
<tr>
<td>&lt;Attribute Name=&quot;Modulation&quot; Value=&quot;On&quot; /&gt;</td>
</tr>
<tr>
<td>&lt;Attribute Name=&quot;RF Level&quot; Value=&quot;10.00&quot; /&gt;</td>
</tr>
<tr>
<td>&lt;Attribute Name=&quot;SG Output&quot; Value=&quot;On&quot; /&gt;</td>
</tr>
<tr>
<td>&lt;/CommonParams&gt;</td>
</tr>
<tr>
<td>&lt;/ImSgParams&gt;</td>
</tr>
<tr>
<td>&lt;ImAcpParams Name=&quot;ACP1&quot;&gt;</td>
</tr>
<tr>
<td>&lt;CommonParams&gt;</td>
</tr>
<tr>
<td>&lt;Attribute Name=&quot;Trace Points&quot; Value=&quot;1001&quot; /&gt;</td>
</tr>
<tr>
<td>&lt;Attribute Name=&quot;Span Freq.&quot; Value=&quot;25000000&quot; /&gt;</td>
</tr>
<tr>
<td>&lt;Attribute Name=&quot;RBW Value&quot; Value=&quot;30kHz&quot; /&gt;</td>
</tr>
<tr>
<td>&lt;Attribute Name=&quot;Detection&quot; Value=&quot;RMS&quot; /&gt;</td>
</tr>
<tr>
<td>&lt;Attribute Name=&quot;Sweep Time Switch&quot; Value=&quot;Auto&quot; /&gt;</td>
</tr>
<tr>
<td>&lt;Attribute Name=&quot;Auto Sweep Time Select&quot; Value=&quot;Normal&quot; /&gt;</td>
</tr>
<tr>
<td>&lt;Attribute Name=&quot;ACP Reference&quot; Value=&quot;Carrier Select&quot; /&gt;</td>
</tr>
<tr>
<td>&lt;Attribute Name=&quot;ACP Carrier Number&quot; Value=&quot;1&quot; /&gt;</td>
</tr>
<tr>
<td>&lt;Attribute Name=&quot;ACP Carrier BW&quot; Value=&quot;4515000&quot; /&gt;</td>
</tr>
<tr>
<td>&lt;Attribute Name=&quot;ACP Carrier Spacing&quot; Value=&quot;5000000&quot; /&gt;</td>
</tr>
<tr>
<td>&lt;Attribute Name=&quot;ACP In Band Center&quot; Value=&quot;0&quot; /&gt;</td>
</tr>
<tr>
<td>&lt;Attribute Name=&quot;ACP In Band FilterType&quot; Value=&quot;Rect&quot; /&gt;</td>
</tr>
<tr>
<td>&lt;Attribute Name=&quot;ACP In Band Roll-off Factor&quot; Value=&quot;22&quot; /&gt;</td>
</tr>
<tr>
<td>&lt;Attribute Name=&quot;ACP Offset1 Value&quot; Value=&quot;5000000&quot; /&gt;</td>
</tr>
<tr>
<td>&lt;Attribute Name=&quot;ACP Offset2 Value&quot; Value=&quot;10000000&quot; /&gt;</td>
</tr>
<tr>
<td>&lt;Attribute Name=&quot;ACP Offset3 Value&quot; Value=&quot;15000000&quot; /&gt;</td>
</tr>
<tr>
<td>&lt;Attribute Name=&quot;ACP Offset1 Switch&quot; Value=&quot;On&quot; /&gt;</td>
</tr>
<tr>
<td>&lt;Attribute Name=&quot;ACP Offset2 Switch&quot; Value=&quot;On&quot; /&gt;</td>
</tr>
<tr>
<td>&lt;/CommonParams&gt;</td>
</tr>
<tr>
<td>&lt;/ImAcpParams&gt;</td>
</tr>
<tr>
<td>&lt;/Params&gt;</td>
</tr>
<tr>
<td>&lt;/SignalAnalyzerProject&gt;</td>
</tr>
</tbody>
</table>
### Table 2.17-10 Parameter List Example (IM Measurement) (Cont’d)

```xml
<Attribute Name="ACP Offset3 Switch" Value="Off" />
<Attribute Name="ACP Offset Ch Bw" Value="4515000" />
<Attribute Name="ACP Offset FilterType" Value="Rect" />
<Attribute Name="ACP Offset Roll-off Factor" Value="22" />
</CommonParams>
</ImAcpParams>
<ImSpaParams Name="SPA1">
<CommonParams>
<Attribute Name="Center Freq." Value="2100000000" />
<Attribute Name="Span Freq." Value="0" />
<Attribute Name="Domain" Value="TimeDomain" />
<Attribute Name="Trace Points" Value="1001" />
<Attribute Name="RBW Value" Value="1MHz" />
<Attribute Name="VBW Value" Value="1MHz" />
<Attribute Name="Detection" Value="Positive" />
<Attribute Name="Sweep Time Switch" Value="Manual" />
<Attribute Name="Sweep Time Time Domain" Value="10000" />
</CommonParams>
</ImSpaParams>
<ImSpaParams Name="SPA2">
<CommonParams>
<Attribute Name="Center Freq." Value="2120000000" />
<Attribute Name="Span Freq." Value="0" />
<Attribute Name="Domain" Value="TimeDomain" />
<Attribute Name="Trace Points" Value="1001" />
<Attribute Name="RBW Value" Value="1MHz" />
<Attribute Name="VBW Value" Value="1MHz" />
<Attribute Name="Detection" Value="Positive" />
<Attribute Name="Sweep Time Switch" Value="Manual" />
<Attribute Name="Sweep Time Time Domain" Value="10000" />
</CommonParams>
</ImSpaParams>
</Params>
</SignalAnalyzerProject>
```
Describe the setting parameters in the part enclosed between the CommonParams elements. The description method consists in describing the parameter name to be set in the Name attribute in the Attribute element, and the setting value in Value. The parts in bold characters in Table 2.17-10 are an actual setting example. Describe all other parts the same as in Table 2.17-10.

Since the settings are done in sequence from the top, be careful about the description order when setting parameters that have relationships of dependence. Also, if a value that is either out of the setting range or that cannot be set has been input, that setting is ignored.
### 2.17 Configuring Batch Measurement Settings

#### Table 2.17-11 Parameter List Settings (IM Measurement – SG Settings)

<table>
<thead>
<tr>
<th>Parameter</th>
<th>Attribute Name Setting</th>
<th>Attribute Value Setting</th>
</tr>
</thead>
<tbody>
<tr>
<td>Package Name</td>
<td>“Package Name”</td>
<td>Describes the Package name to use.</td>
</tr>
<tr>
<td>Pattern Name</td>
<td>“Pattern Name”</td>
<td>Describes the Pattern name to use.</td>
</tr>
<tr>
<td>External Trigger Source</td>
<td>“Trigger Source”</td>
<td>“Ext Trigger”: External “Application Sync Trigger”: Application Sync “Baseband I/F”: BBIF</td>
</tr>
<tr>
<td>External Trigger Mode</td>
<td>“Trigger Mode”</td>
<td>“Start Trigger”: Start Trigger “Frame Trigger”: Frame Trigger</td>
</tr>
<tr>
<td>External Trigger Edge</td>
<td>“Trigger Edge”</td>
<td>“0”: Fall “1”: Rise</td>
</tr>
<tr>
<td>SA Trigger Out</td>
<td>“SA Trigger Out”</td>
<td>“Marker1”: Marker 1 “Marker2”: Marker 2 “Marker3”: Marker 3 “Pattern Sync”: Pattern Sync</td>
</tr>
<tr>
<td>Marker1 Polarity</td>
<td>“Marker1 Polarity”</td>
<td>“1”: Positive “0”: Negative</td>
</tr>
<tr>
<td>Marker1 Edit</td>
<td>“Marker1 Edit”</td>
<td>“ON”: On “OFF”: Off “SYNC”: Pattern Sync</td>
</tr>
<tr>
<td>Frequency</td>
<td>“Frequency”</td>
<td>Describes in 0.01 Hz units.</td>
</tr>
<tr>
<td>RF Level</td>
<td>“RF Level”</td>
<td>Describes in dBm units.</td>
</tr>
<tr>
<td>Level Offset On/Off</td>
<td>“Offset”</td>
<td>“On”: On “Off”: Off</td>
</tr>
<tr>
<td>Level Offset</td>
<td>“Offset Value”</td>
<td>Describes in dB units.</td>
</tr>
<tr>
<td>SG Output</td>
<td>“SG Output”</td>
<td>“On”: On “Off”: Off</td>
</tr>
<tr>
<td>Level Auto CAL</td>
<td>“Level Auto CAL”</td>
<td>“On”: On “Off”: Off</td>
</tr>
</tbody>
</table>
Table 2.17-12  Parameter List Settings (IM Measurement – ACP Settings)

<table>
<thead>
<tr>
<th>Parameter</th>
<th>Attribute Name Setting</th>
<th>Attribute Value Setting</th>
</tr>
</thead>
<tbody>
<tr>
<td>Center Frequency</td>
<td>“Center Freq.”</td>
<td>Value is described in Hz units.</td>
</tr>
<tr>
<td>Spurious Mode</td>
<td>“Frequency Band Spurious Mode”</td>
<td>“Normal”: Normal</td>
</tr>
<tr>
<td></td>
<td></td>
<td>“Spurious”: Spurious</td>
</tr>
<tr>
<td>Span Frequency</td>
<td>“Span Freq.”</td>
<td>Value is described in Hz units.</td>
</tr>
<tr>
<td>Reference Level</td>
<td>“Reference Level”</td>
<td>Value is described in dBm units.</td>
</tr>
<tr>
<td>Reference Level Offset</td>
<td>“Reference Level Offset”</td>
<td>“On”: On</td>
</tr>
<tr>
<td></td>
<td></td>
<td>“Off”: Off</td>
</tr>
<tr>
<td>Reference Level Offset Value</td>
<td>“Reference Level Offset Value”</td>
<td>Value is described in 0.01 dB units.</td>
</tr>
<tr>
<td>RBW Auto/Manual</td>
<td>“RBW Switch”</td>
<td>“Auto”: Auto</td>
</tr>
<tr>
<td>VBW Auto/Manual</td>
<td>“VBW Switch”</td>
<td>“Auto”: Auto</td>
</tr>
<tr>
<td>Sweep Time Auto/Manual</td>
<td>“Sweep Time Switch”</td>
<td>“Auto”: Auto</td>
</tr>
<tr>
<td>Attenuator Auto/Manual</td>
<td>“ATTN Switch”</td>
<td>“Auto”: Auto</td>
</tr>
<tr>
<td>RBW</td>
<td>“RBW Value”</td>
<td>“30Hz”: 30 Hz</td>
</tr>
<tr>
<td></td>
<td></td>
<td>“100Hz”: 100 Hz</td>
</tr>
<tr>
<td></td>
<td></td>
<td>“300Hz”: 300 Hz</td>
</tr>
<tr>
<td></td>
<td></td>
<td>“500Hz”: 500 Hz</td>
</tr>
<tr>
<td></td>
<td></td>
<td>“1kHz”: 1 kHz</td>
</tr>
<tr>
<td></td>
<td></td>
<td>“3kHz”: 3 kHz</td>
</tr>
<tr>
<td></td>
<td></td>
<td>“10kHz”: 10 kHz</td>
</tr>
<tr>
<td></td>
<td></td>
<td>“30kHz”: 30 kHz</td>
</tr>
<tr>
<td></td>
<td></td>
<td>“50 kHz”: 50 kHz</td>
</tr>
<tr>
<td></td>
<td></td>
<td>“100kHz”: 100 kHz</td>
</tr>
<tr>
<td></td>
<td></td>
<td>“300kHz”: 300 kHz</td>
</tr>
<tr>
<td></td>
<td></td>
<td>“1MHz”: 1 MHz</td>
</tr>
<tr>
<td></td>
<td></td>
<td>“2MHz”: 2 MHz</td>
</tr>
<tr>
<td></td>
<td></td>
<td>“3MHz”: 3 MHz</td>
</tr>
<tr>
<td></td>
<td></td>
<td>“5MHz”: 5 MHz</td>
</tr>
<tr>
<td></td>
<td></td>
<td>“10MHz”: 10 MHz</td>
</tr>
<tr>
<td></td>
<td></td>
<td>“20MHz”: 20 MHz</td>
</tr>
</tbody>
</table>
### Table 2.17-12 Parameter List Settings (IM Measurement – ACP Settings) (Cont’d)

<table>
<thead>
<tr>
<th>Parameter</th>
<th>Attribute Name Setting</th>
<th>Attribute Value Setting</th>
</tr>
</thead>
<tbody>
<tr>
<td>VBW</td>
<td>“VBW Value”</td>
<td>“1Hz”: 1 Hz&lt;br&gt;“3Hz”: 3 Hz&lt;br&gt;“10Hz”: 10 Hz&lt;br&gt;“30Hz”: 30 Hz&lt;br&gt;“100Hz”: 100 Hz&lt;br&gt;“300Hz”: 300 Hz&lt;br&gt;“1kHz”: 1 kHz&lt;br&gt;“3kHz”: 3 kHz&lt;br&gt;“10kHz”: 10 kHz&lt;br&gt;“30kHz”: 30 kHz&lt;br&gt;“5kHz”: 5 kHz&lt;br&gt;“100kHz”: 100 kHz&lt;br&gt;“300kHz”: 300 kHz&lt;br&gt;“1MHz”: 1 MHz&lt;br&gt;“3MHz”: 3 MHz&lt;br&gt;“10MHz”: 10 MHz&lt;br&gt;“Off”: Off</td>
</tr>
<tr>
<td>Sweep Time</td>
<td>“Sweep Time Freq. Domain”</td>
<td>Value is described in ms units.</td>
</tr>
<tr>
<td>Attenuator</td>
<td>“ATTN Value”</td>
<td>Value is described in dB units.</td>
</tr>
<tr>
<td>Storage Mode</td>
<td>“Storage Mode A”</td>
<td>“Lin Average”: Lin Average&lt;br&gt;“Average”: Average&lt;br&gt;“Max Hold”: Max Hold&lt;br&gt;“Min Hold”: Min Hold&lt;br&gt;“Off”: Off</td>
</tr>
<tr>
<td>Storage Count</td>
<td>“Storage Count”</td>
<td>Describes the storage count.</td>
</tr>
<tr>
<td>Trace Points</td>
<td>“Trace Points”</td>
<td>Describes the number of trace points.</td>
</tr>
<tr>
<td>Detection</td>
<td>“Detection”</td>
<td>“Pos &amp; Neg”: Pos &amp; Neg&lt;br&gt;“Positive”: Positive&lt;br&gt;“Negative”: Negative&lt;br&gt;“Sample”: Sample&lt;br&gt;“RMS”: RMS</td>
</tr>
<tr>
<td>Parameter</td>
<td>Attribute Name Setting</td>
<td>Attribute Value Setting</td>
</tr>
<tr>
<td>----------------------------------</td>
<td>------------------------</td>
<td>-------------------------------</td>
</tr>
<tr>
<td>Trigger Switch</td>
<td>“Trigger Switch”</td>
<td>“Off”: Off “On”: On</td>
</tr>
<tr>
<td>Trigger Slope</td>
<td>“Trigger Slope”</td>
<td>“Rise”: Rise “Fall”: Fall</td>
</tr>
<tr>
<td>Trigger Level (Video)</td>
<td>“Trigger Level(Video)Log”</td>
<td>Value is described in dBm units.</td>
</tr>
<tr>
<td>Trigger Level (Wide IF Video)</td>
<td>“Trigger Level(Wide)”</td>
<td>Value is described in dBm units.</td>
</tr>
<tr>
<td>Gate Sweep</td>
<td>“Gate Sweep”</td>
<td>“Off”: Off “On”: On</td>
</tr>
<tr>
<td>Gate Source</td>
<td>“Gate Source”</td>
<td>“External”: External “SG Marker”: SG Marker “Wide IF Video”: “BBIF”: BBIF</td>
</tr>
<tr>
<td>Gate Delay</td>
<td>“Gate Delay”</td>
<td>Value is described in ns units.</td>
</tr>
<tr>
<td>Gate Length</td>
<td>“Gate Length”</td>
<td>Value is described in ns units.</td>
</tr>
<tr>
<td>Gate Level (Wide IF Video)</td>
<td>“Gate Level(Wide)”</td>
<td>Value is described in dBm units.</td>
</tr>
<tr>
<td>Gate Slope</td>
<td>“Gate Slope”</td>
<td>“Rise”: Rise “Fall”: Fall</td>
</tr>
<tr>
<td>Pre-amp</td>
<td>“Pre-amp”</td>
<td>“Off”: Off “On”: On</td>
</tr>
<tr>
<td>VBW Mode</td>
<td>“VBW Mode”</td>
<td>“Power”: Power “Video”: Video</td>
</tr>
<tr>
<td>ACP Reference</td>
<td>“ACP Reference”</td>
<td>“Both Sides of &amp;x;Carriers”: Both Sides of Carriers “Span Total”: Span Total “Carrier Total”: Carrier Total “Carrier Select”: Carrier Select</td>
</tr>
</tbody>
</table>
### Table 2.17-12 Parameter List Settings (IM Measurement – ACP Settings) (Cont’d)

<table>
<thead>
<tr>
<th>Parameter</th>
<th>Attribute Name Setting</th>
<th>Attribute Value Setting</th>
</tr>
</thead>
<tbody>
<tr>
<td>ACP Carrier Select Number</td>
<td>“ACP Carrier Select Number”</td>
<td>Describes reference carrier number.</td>
</tr>
<tr>
<td>ACP In Band Center</td>
<td>“ACP In Band Center”</td>
<td>Value is described in Hz units.</td>
</tr>
<tr>
<td>ACP Carrier Spacing</td>
<td>“ACP Carrier Spacing”</td>
<td>Value is described in Hz units.</td>
</tr>
<tr>
<td>ACP Carrier BW</td>
<td>“ACP Carrier BW”</td>
<td>Value is described in Hz units.</td>
</tr>
<tr>
<td>ACP In Band FilterType</td>
<td>“ACP In Band FilterType”</td>
<td>“Rect”: Rect</td>
</tr>
<tr>
<td></td>
<td></td>
<td>“Nyquist”: Nyquist</td>
</tr>
<tr>
<td></td>
<td></td>
<td>“Root Nyquist”: Root Nyquist</td>
</tr>
<tr>
<td>ACP In Band Roll-off Factor</td>
<td>“ACP In Band Roll-off Factor”</td>
<td>Value is described in 0.01 units.</td>
</tr>
<tr>
<td>ACP Offset Ch Bw</td>
<td>“ACP Offset Ch Bw”</td>
<td>Value is described in Hz units.</td>
</tr>
<tr>
<td>ACP Offset1 Switch</td>
<td>“ACP Offset1 Switch”</td>
<td>“Off”: Off</td>
</tr>
<tr>
<td></td>
<td></td>
<td>“On”: On</td>
</tr>
<tr>
<td>ACP Offset2 Switch</td>
<td>“ACP Offset2 Switch”</td>
<td>“Off”: Off</td>
</tr>
<tr>
<td></td>
<td></td>
<td>“On”: On</td>
</tr>
<tr>
<td>ACP Offset3 Switch</td>
<td>“ACP Offset3 Switch”</td>
<td>“Off”: Off</td>
</tr>
<tr>
<td></td>
<td></td>
<td>“On”: On</td>
</tr>
<tr>
<td>ACP Offset1 Value</td>
<td>“ACP Offset1 Value”</td>
<td>Value is described in Hz units.</td>
</tr>
<tr>
<td>ACP Offset2 Value</td>
<td>“ACP Offset2 Value”</td>
<td>Value is described in Hz units.</td>
</tr>
<tr>
<td>ACP Offset3 Value</td>
<td>“ACP Offset3 Value”</td>
<td>Value is described in Hz units.</td>
</tr>
<tr>
<td>ACP Offset FilterType</td>
<td>“ACP Offset FilterType”</td>
<td>“Rect”: Rect</td>
</tr>
<tr>
<td></td>
<td></td>
<td>“Nyquist”: Nyquist</td>
</tr>
<tr>
<td></td>
<td></td>
<td>“Root Nyquist”: Root Nyquist</td>
</tr>
<tr>
<td>ACP Offset Roll-off Factor</td>
<td>“ACP Offset Roll-off Factor”</td>
<td>Value is described in 0.01 units.</td>
</tr>
<tr>
<td>ACP Power Result Type</td>
<td>“ACP Power Result Type”</td>
<td>“Ofs.”: Offset</td>
</tr>
<tr>
<td></td>
<td></td>
<td>“Carrier”: Carrier</td>
</tr>
<tr>
<td>Auto Sweep Time Select</td>
<td>“Auto Sweep Time Select”</td>
<td>“Normal”: Normal</td>
</tr>
<tr>
<td></td>
<td></td>
<td>“Fast”: Fast</td>
</tr>
</tbody>
</table>
### Table 2.17-13 Parameter List Settings (IM Measurement – SPA Settings)

<table>
<thead>
<tr>
<th>Parameter</th>
<th>Attribute Name Setting</th>
<th>Attribute Value Setting</th>
</tr>
</thead>
<tbody>
<tr>
<td>Relative Frequency</td>
<td>“Relative Freq.”</td>
<td>When this parameter is used, the relative frequency can be set from command argument &lt;spa_freq&gt; as the center frequency. Value is described in Hz units.</td>
</tr>
<tr>
<td>Center Frequency</td>
<td>“Center Freq.”</td>
<td>Value is described in Hz units.</td>
</tr>
<tr>
<td>Spurious Mode</td>
<td>“Frequency Band Spurious Mode”</td>
<td>“Normal”: Normal “Spurious”</td>
</tr>
<tr>
<td>Reference Level</td>
<td>“Reference Level”</td>
<td>Value is described in dBm units.</td>
</tr>
<tr>
<td>Reference Level Offset</td>
<td>“Reference Level Offset”</td>
<td>“On”: On “Off”: Off</td>
</tr>
<tr>
<td>Reference Level Offset Value</td>
<td>“Reference Level Offset Value”</td>
<td>Value is described in 0.01 dB units.</td>
</tr>
<tr>
<td>RBW</td>
<td>“RBW Value Time Domain”</td>
<td>“30Hz”: 30 Hz “100Hz”: 100 Hz “300Hz”: 300 Hz “500Hz”: 500 Hz “1kHz”: 1 kHz “3kHz”: 3 kHz “10kHz”: 10 kHz “30kHz”: 30 kHz “50 kHz”: 50 kHz “100kHz”: 100 kHz “300kHz”: 300 kHz “1MHz”: 1 MHz “2MHz”: 2 MHz “3MHz”: 3 MHz “5MHz”: 5 MHz “10MHz”: 10 MHz “20MHz”: 20 MHz</td>
</tr>
</tbody>
</table>
Table 2.17-13  Parameter List Settings (IM Measurement – SPA Settings) (Cont’d)

<table>
<thead>
<tr>
<th>Parameter</th>
<th>Attribute Name Setting</th>
<th>Attribute Value Setting</th>
</tr>
</thead>
<tbody>
<tr>
<td>VBW</td>
<td>“VBW Value Time Domain”</td>
<td>“1Hz”: 1 Hz “3Hz”: 3 Hz “10Hz”: 10 Hz “30Hz”: 30 Hz “100Hz”: 100 Hz “300Hz”: 300 Hz “1kHz”: 1 kHz “3kHz”: 3 kHz “5 kHz”: 5 kHz “10kHz”: 10 kHz “30kHz”: 30 kHz “100kHz”: 100 kHz “300kHz”: 300 kHz “1MHz”: 1 MHz “3MHz”: 3 MHz “10MHz”: 10 MHz “Off”: Off</td>
</tr>
<tr>
<td>Sweep Time</td>
<td>“Sweep Time Time Domain”</td>
<td>Value is described in µs units.</td>
</tr>
<tr>
<td>Attenuator</td>
<td>“ATTN Value”</td>
<td>Value is described in dB units.</td>
</tr>
<tr>
<td>Storage Mode</td>
<td>“Storage Mode A”</td>
<td>“Lin Average”: Lin Average “Average”: Average “Max Hold”: Max Hold “Min Hold”: Min Hold “Off”: Off</td>
</tr>
<tr>
<td>Storage Count</td>
<td>“Storage Count”</td>
<td>Describes the storage count.</td>
</tr>
<tr>
<td>Trace Points</td>
<td>“Trace Points Time Domain”</td>
<td>Describes the number of trace points.</td>
</tr>
<tr>
<td>Detection</td>
<td>“Detection Time Domain”</td>
<td>“Pos &amp; Neg”: Pos &amp; Neg “Positive”: Positive “Negative”: Negative “Sample”: Sample “RMS”: RMS</td>
</tr>
</tbody>
</table>
Table 2.17-13  Parameter List Settings (IM Measurement – SPA Settings) (Cont’d)

<table>
<thead>
<tr>
<th>Parameter</th>
<th>Attribute Name Setting</th>
<th>Attribute Value Setting</th>
</tr>
</thead>
<tbody>
<tr>
<td>Trigger Switch</td>
<td>“Trigger Switch”</td>
<td>“Off”: Off “On”: On</td>
</tr>
<tr>
<td></td>
<td></td>
<td>“Video”: Video “External”: External “SG Marker”: SG Marker</td>
</tr>
<tr>
<td></td>
<td></td>
<td>“Wide IF Video”: Wide IF Video “BBIF”: BBIF</td>
</tr>
<tr>
<td>Trigger Source</td>
<td>“Trigger Source”</td>
<td>“Rise”: Rise “Fall”: Fall</td>
</tr>
<tr>
<td></td>
<td></td>
<td>Value is described in dBm units.</td>
</tr>
<tr>
<td>Trigger Slope</td>
<td>“Trigger Slope”</td>
<td>Value is described in dBm units.</td>
</tr>
<tr>
<td></td>
<td></td>
<td>Value is described in dBm units.</td>
</tr>
<tr>
<td>Pre-amp</td>
<td>“Pre-amp”</td>
<td>“Off”: Off “On”: On</td>
</tr>
<tr>
<td></td>
<td></td>
<td>“Power”: Power “Video”: Video</td>
</tr>
<tr>
<td>VBW Mode</td>
<td>“VBW Mode”</td>
<td></td>
</tr>
</tbody>
</table>
2.17 Configuring Batch Measurement Settings

:MEASure:POWadj?

<rwb>,<length>,<sg_start_level>,<sg_max_level>,<target>,<range>[,<frequency>[,<tracepoint>[,<count>[,<adjust_log>[,<sg_offset_switch>]]]]]

Measure Power Adjust

Function

This command executes power adjustment and reads the result. Power adjustment combines the SG option and power measurement functions to set the output level of the DUT, such as an amplifier, to the specified level.

Query

:MEASure:POWadj?

<rwb>,<length>,<sg_start_level>,<sg_max_level>,<target>,<range>[,<frequency>[,<tracepoint>[,<count>[,<adjust_log>[,<sg_offset_switch>]]]]]

Response

<judge>,<sa_input>,<sg_output>,<count_res>,<time>,<sa_input_log_n>,<sg_output_log_n>,<count_log_n>

Parameter

<rwb> Analysis bandwidth

[MS269xA]
Range/Resolution 30 Hz to 31.25 MHz
Either of the values, 30 Hz to 3 MHz (1-3 sequence), 50 kHz, 5 MHz, 10 MHz, 20 MHz, and 31.25 MHz can be used.
Set the specified waveform bandwidth or more. Recommended to set at 31.25 MHz

[MS2830A], [MS2840A]
Range/Resolution 30 Hz to 31.25 MHz
Either of the values, 30 Hz to 3 MHz (1-3 sequence), 500 Hz, 5 kHz, 2 MHz, 5 MHz, 10 MHz, 20 MHz, and 31.25 MHz can be used.
Set the specified waveform bandwidth or more. Recommended to set at 31.25 MHz

[Common]
Suffix code HZ, KHZ, KZ, MHZ, MZ, GHZ, GZ
Hz is used when omitted

<length> Analysis length

Range 1 µs to 1000 s
Suffix code NS,US,MS,S
S is used when omitted
µs (resolution)

<sg_start_level> Set the SG output level set at the start.
When inserting a DUT, specify the DUT input
level and RF Input so the maximum input level is not exceeded.

Range

[MS269xA]

–140 dBm to –5 dBm

[MS2830A], [MS2840A]

–40.00 dBm to +20.00 dBm (>25 MHz)
–40.00 dBm to +2.00 dBm (≤25 MHz)
–136.00 dBm to +15.00 dBm (>25 MHz)
(Option 022/122)
–136.00 dBm to –3.00 dBm (≤25 MHz)
(Option 022/122)

Resolution

0.01 dBm

<sg_max_level> Set the SG maximum output level.

When inserting a DUT, specify the DUT input level and RF Input so the maximum input level is not exceeded.

Range

[MS269xA]

–140 dBm to –5 dBm

[MS2830A], [MS2840A]

–40.00 dBm to +20.00 dBm (>25 MHz)
–40.00 dBm to +2.00 dBm (≤25 MHz)
–136.00 dBm to +15.00 dBm (>25 MHz)
(Option 022/122)
–136.00 dBm to –3.00 dBm (≤25 MHz)
(Option 022/122)

Resolution

0.01 dBm

Suffix code DBM,DM

<target> Target level when executing power adjustment

Range

–150 dBm to 30 dBm (Pre-Amp Off)
–150 dBm to 10 dBm (Pre-Amp On)

When adding the reference offset, the added value is the setting range.

Resolution

0.01 dBm

Suffix code DBM,DM

<range> Power adjustment range

Power adjusted is evaluated as PASS when adjustment is within the specified range

Range

0 to 20 dB

Resolution

0.01 dB

<frequency> Power adjustment execution frequency

Range

[MS269xA] 125 MHz to 6 GHz

[MS2830A] 250 kHz to 3.6 GHz (Option 020/120)
250 kHz to 6 GHz (Option 041/043, and 021/121)

[MS2840A] 250 kHz to 3.6 GHz (Option 020/120)
250 kHz to 6 GHz (Option 041, and 021/121)

Resolution

1 Hz

Suffix code HZ, KHZ, KZ, MHZ, MZ, GHZ, GZ

Hz is used when omitted.
2.17 Configuring Batch Measurement Settings

MAXimum, MINimum, and DEFault cannot be used. The currently set frequency cannot be used when omitted.

<tracepoint>
trace point
11 11 point
21 21 point
41 41 point
51 51 point
101 101 point
201 201 point
251 251 point
401 401 point
501 501 point
1001 1001 point
2001 2001 point
5001 5001 point
10001 10001 point
30001 30001 point

(MS269xA, MS2830A, MS2840A Only)
Recommended to specify Trace Point to 1001.

<count>
Power adjustment execution count
Range 1 to 10
Resolution 1
Suffix code None. If the value is omitted, power adjustment is executed 5 times.

<adjust_log>
Specifies whether or not to output Log at each power adjustment.
ON|1 Output log
OFF|0 Do not output log

<sg_offset_switch>
Specifies whether or not to output Log at each power adjustment.
ON|1 Return level offset setting
OFF|0 Do not return the level offset setting values

<judge>
Evaluates power adjustment
0 is returned at PASS and 1 is returned at FAIL.
−999.0 is returned if there is no measurement.

<sa_input>
DUT output level
Suffix code None, dBm (unit)
0.01 dB (resolution)
−999.0 is returned if there is no measurement.

<sg_output>
Output level of SG Output of this equipment
Suffix code None, dBm (unit)
0.01 dB (resolution)
−999.0 is returned if there is no measurement.

<count_res>
Power adjustment execution count

<time>
Power adjustment time
Suffix code None, ms (unit)
−999.0 is returned if there is no measurement.
Chapter 2  SCPI Device Message Details

<table>
<thead>
<tr>
<th>Field</th>
<th>Description</th>
</tr>
</thead>
<tbody>
<tr>
<td>Suffix code</td>
<td>Added to response when Log Output on</td>
</tr>
<tr>
<td></td>
<td>None, dBm (unit)</td>
</tr>
<tr>
<td></td>
<td>0.01 dB (resolution)</td>
</tr>
<tr>
<td>&lt;sg_output_log_n&gt;</td>
<td>Output level from SG Output at each power adjustment</td>
</tr>
<tr>
<td></td>
<td>Added to response when Log Output on</td>
</tr>
<tr>
<td>&lt;count_log_n&gt;</td>
<td>Power adjustment count</td>
</tr>
<tr>
<td></td>
<td>Added to response when Log Output on</td>
</tr>
</tbody>
</table>

Details

This function cannot be performed when the SG option is not installed.

SG setting and measurement are executed repeatedly until the target level specified at target, range is reached within the count specified at count. This is used for various measurements such as a spurious measurement with specified output level.

In this application, the Reference Level and Attenuator settings are calculated as follows from the Adjustment Target Level, Crest Factor, and Correction value and are set automatically at the measurement section. Using this application, the Attenuator is set so that the Mixer Input Level become 0 dBm.

Reference Level setting value
Reference Level = < target > + Crest Factor - Correction
* Crest Factor = 12 dB
However, it is rounded to 50 dBm when Reference Level > 50 dBm (30 dBm at Pre-amp On) and to –120 dBm when Reference Level < –120 dBm

Attenuator setting values
Attenuator = Reference Level - Mixer Input Level + Pre - Amp Gain - Offset
* Mixer Input Level = 0
* Pre-Amp Gain = 20 dB (only at Pre-Amp On)
* Offset - Reference Level Offset value
However, it is rounded to 60 dB when Attenuator > 60 and to 0 dBm when Attenuator < 0. Additionally, when the Attenuator value is an odd number, it is rounded up to the nearest even number (Example: 35 dB → 36 dB).

After executing this command, the function and the following settings specified by an argument are changed.
- Sets Detection to RMS
2.17 Configuring Batch Measurement Settings

- Sets Sweep Mode to Single
- Sets Scale Mode to Log
- Sets Log Scale Unit to dBm

When using the SG offset function, switch to the SG application and set the offset level. Set the value with offset to this command arguments, \textit{sg\_start\_level} and \textit{sg\_max\_level} and set \textit{sg\_offset\_switch} to On.
\textit{sg\_output} and \textit{sg\_output\_log\_n} returns the output level with offset.

Example of Use

To execute power adjustment under the following conditions:
- Frequency: 2 GHz
- Analysis width: 5 MHz
- Trace point: 1001
- Analysis length: 500 µs
- Start SG output level: –30 dBm
- Max. SG output level: –5 dBm
- Adjustment target level: –10 dBm
- Adjustment range: 0.4 dB
- Adjustment count: 6 times
- Log output: On
- SG Offset: On

\texttt{MEAS:POW?}

\texttt{20000000,500US,-30,-5,-10,0.4,2000000000,1001,6,ON,ON}

> 0,-9.6,-12.5,3,156,-28,-30,1,-9.5,-12.0,2,-9.6,-12.5,3
# Chapter 2  SCPI Device Message Details

## 2.18 Other Settings

Table 2.18-1 lists device messages for other settings.

<table>
<thead>
<tr>
<th>Function</th>
<th>Device Message</th>
</tr>
</thead>
<tbody>
<tr>
<td>Measurement Status Query</td>
<td>:STATus:ERRor?</td>
</tr>
<tr>
<td>Uncal Status Query</td>
<td>:STATus:UNCal?</td>
</tr>
<tr>
<td>Erase Warm Up Message</td>
<td>:DISPLAY:ANAnnotation:WUP:ERASe</td>
</tr>
<tr>
<td>Display Uncal Message</td>
<td>:DISPLAY:ANAnnotation:UNCal[:STATe] ON</td>
</tr>
<tr>
<td>Display Title</td>
<td>:DISPLAY:ANAnnotation:TITLe[:STATe] ON</td>
</tr>
<tr>
<td>Title Entry</td>
<td>:DISPLAY:ANAnnotation:TITLe:DATA &lt;string&gt;</td>
</tr>
<tr>
<td>Pre-selector Auto Tune</td>
<td>:CALibration:YTF</td>
</tr>
<tr>
<td>Pre-selector Tune</td>
<td>[:SENSe]:POWer[:RF]:PADJust &lt;freq&gt;</td>
</tr>
<tr>
<td>Adjust Reference Clock</td>
<td>:CALibration:RCLock[:VALue] &lt;integer&gt;</td>
</tr>
<tr>
<td>Adjust Reference Clock Preset</td>
<td>:CALibration:RCLock[:VALue]:PRESet</td>
</tr>
<tr>
<td>Micro Wave</td>
<td>[:SENSe]:POWer[:RF]:MW:PRESelector[:STATe] ON</td>
</tr>
<tr>
<td>Preselector Bypass</td>
<td></td>
</tr>
</tbody>
</table>

2-952
:STATus:ERRor?
Measurement Status Query

Function
This command queries the measurement status.

Query
:STATus:ERRor?

Response
<status>

Parameter
<status> Measurement status
Value = bit0 + bit1 + bit2 + bit3 + bit4 + bit5 + bit6
+ bit7 + bit8 + bit9 + bit10 + bit11 + bit12
+ bit13 + bit14 + bit15

bit0 : 2^0 = 1 Not measured
bit1 : 2^1 = 2 Level over
bit2 : 2^2 = 4 (Not used)
bit3 : 2^3 = 8 (Not used)
bit4 : 2^4 = 16 (Not used)
bit5 : 2^5 = 32 (Not used)
bit6 : 2^6 = 64 (Not used)
bit7 : 2^7 = 128 (Not used)
bit8 : 2^8 = 256 (Not used)
bit9 : 2^9 = 512 (Not used)
bit10 : 2^10 = 1024 (Not used)
bit11 : 2^11 = 2048 (Not used)
bit12 : 2^12 = 4096 (Not used)
bit13 : 2^13 = 8192 (Not used)
bit14 : 2^14 = 16384 (Not used)
bit15 : 2^15 = 32768 (Not used)

Range 0 to 255

Details
0 is returned when the measurement ends normally.

Example of Use
To query the measurement status.
STAT:ERR?
> 0
Chapter 2  SCPI Device Message Details

:STATus:UNCal?
Uncal Status Query

Function
This command queries UNCAL status.

Query
:STATus:UNCal?

Response
<status>

Parameter
<status>  UNCAL status
   NORM   Normal
   UNC    UNCAL

Example of Use
To query UNCAL status.
STAT:UNC?
> NORM

:DISPlay:ANNotation:WUP:ERASe
Erase Warm Up Message

Function
This command erases the warm up message displayed after startup.

Command
:DISPlay:ANNotation:WUP:ERASe

Example of Use
To erase the warm up display.
DISP:ANN:WUP:ERAS
:DISPlay:ANNotation:UNCal[:STATe] ON|OFF|1|0
Display Uncal Message

Function
This command enables/disables the UNCAL display when Uncal occurs.

Command
:DISPlay:ANNotation:UNCal[:STATe] <switch>

Parameter

<table>
<thead>
<tr>
<th>&lt;switch&gt;</th>
<th>UNCAL display On/Off</th>
</tr>
</thead>
<tbody>
<tr>
<td>ON</td>
<td>1</td>
</tr>
<tr>
<td>OFF</td>
<td>0</td>
</tr>
</tbody>
</table>

Example of Use
To disable the UNCAL display.
DISP:ANN:UNC OFF

:DISPlay:ANNotation:UNCal[:STATe]?
Display Uncal Message Query

Function
This command queries the On/Off state of the Uncal display when Uncal occurs.

Query
:DISPlay:ANNotation:UNCal[:STATe]?

Response

<table>
<thead>
<tr>
<th>&lt;switch&gt;</th>
</tr>
</thead>
</table>

Parameter

<table>
<thead>
<tr>
<th>&lt;switch&gt;</th>
<th>UNCAL display On/Off</th>
</tr>
</thead>
<tbody>
<tr>
<td>1</td>
<td>UCAL display is enabled.</td>
</tr>
<tr>
<td>0</td>
<td>UCAL display is disabled.</td>
</tr>
</tbody>
</table>

Example of Use
To query the On/Off state of the UNCAL display.
DISP:ANN:UNC?
> 0
Chapter 2  SCPI Device Message Details

:DISPlay:ANNotation:TITLe[:STATe] ON|OFF|1|0
Display Title

Function
This command enables/disables the title display.

Command
:DISPlay:ANNotation:TITLe[:STATe] <switch>

Parameter

<table>
<thead>
<tr>
<th>Switch</th>
<th>Description</th>
</tr>
</thead>
<tbody>
<tr>
<td>ON</td>
<td>Enables the title display.</td>
</tr>
<tr>
<td>OFF</td>
<td>Disables the title display.</td>
</tr>
</tbody>
</table>

Example of Use
To enable the title display.
DISP:ANN:TITL ON

:DISPlay:ANNotation:TITLe[:STATe]?
Display Title Query

Function
This command queries the On/Off state of the title display.

Query
:DISPlay:ANNotation:TITLe[:STATe]?

Response

<table>
<thead>
<tr>
<th>Switch</th>
<th>Description</th>
</tr>
</thead>
<tbody>
<tr>
<td>ON</td>
<td>Title display is enabled.</td>
</tr>
<tr>
<td>OFF</td>
<td>Title display is displayed.</td>
</tr>
</tbody>
</table>

Example of Use
To query the On/Off state of the title display.
DISP:ANN:TITL?
> 1
:DISPlay:ANNotation:TITLe:DATA <string>

Title Entry

Function

This command registers the title character string.

Command

:DISPlay:ANNotation:TITLe:DATA <string>

Parameter

<string> Character string within 32 characters enclosed by double quotation marks ("" ) or single quotation marks (‘ ‘).

Example of Use

To set the title character string.
DISP:ANN:TITL:DATA 'SPECTRUM ANALYZER'

Related Command

This command has the same function as the following command.
:DISPlay:ACPower:ANNotation:TITLe:DATA

:DISPlay:ANNotation:TITLe:DATA?

Title Entry Query

Function

This command queries the title character string.

Query

:DISPlay:ANNotation:TITLe:DATA?

Response

<string>

Parameter

<string> Character string within 32 characters enclosed by double quotation marks ("" ) or single quotation marks (‘ ‘).
Example of Use

To query the title character string.

DISP:ANN:TITL:DATA?

> SPECTRUM ANALYZER

Related Command

This command has the same function as the following command.

:DISPlay:ACPower:ANNotation:TITLe:DATA

:CALibration:YTF

Pre-selector Auto Tune

Function

This command tunes the preselector peaking bias value automatically, and performs the preselector auto tuning.

Command

:CALibration:YTF

Details

Preselector auto tuning is not available in the following conditions:

[Common]
- During the Spurious Emission measurement and Displayed Segment Mode is set to Auto.
- Frequency span is > 500 MHz.
- Option 007/067/167 is installed and Preselector Bypass is ON.
- Frequency Band Mode is Normal and center frequency is ≤ 6.0 GHz
- Frequency Band Mode is Spurious and center frequency is ≤ 4.0 GHz

[MS269xA]
- MS2690A is used.

[MS2830A], [MS2840A], [MS2850A]
- MS2830A-040/041/043 is used.
- MS2840A-040/041 is used.

Example of Use

To set the pre-selector to auto.

CAL:YTF
:CALibration:YTF?
Pre-selector Auto Tune Query

Function

This command queries whether preselector auto tuning is completed normally.

Query

:CALibration:YTF?

Response

<result>

Parameter

Automatic tuning result

<table>
<thead>
<tr>
<th>&lt;result&gt;</th>
<th></th>
<th></th>
</tr>
</thead>
<tbody>
<tr>
<td>0</td>
<td>Normal end</td>
<td></td>
</tr>
<tr>
<td>1</td>
<td>Abnormal end</td>
<td></td>
</tr>
</tbody>
</table>

Details

Even if preselector auto turning cannot be executed, “normal end” may be returned as a result.

This command is not available in the following conditions:

[Common]
- During the Spurious Emission measurement and Displayed Segment Mode is set to Auto.

[MS269xA]
- MS2690A is used.

[MS2830A], [MS2840A], [MS2850A]
- MS2830A-040/041/043 is used.
- MS2840A-040/041 is used.

Example of Use

To query the pre-selector settings.

CAL:YTF?
> 0
[:SENSe]:POWer[:RF]:PADJust <freq>
Pre-selector Tune

Function

This command sets the Preselector peaking bias value to tune the Preselector.

Command

[:SENSe]:POWer[:RF]:PADJust <freq>

Parameter

<table>
<thead>
<tr>
<th>Parameter</th>
<th>Description</th>
</tr>
</thead>
<tbody>
<tr>
<td>&lt;freq&gt;</td>
<td>Peaking bias value</td>
</tr>
<tr>
<td>Range</td>
<td>–128 to 127</td>
</tr>
<tr>
<td>Resolution</td>
<td>1</td>
</tr>
<tr>
<td>Default</td>
<td>0</td>
</tr>
</tbody>
</table>

Details

In the following conditions, the peaking bias value can be set, but preselector cannot be used.

[Common]
- Frequency span is > 500 MHz.
- Option 007/067/167 is installed and Preselector Bypass is ON.
- Frequency Band Mode is Normal and center frequency is ≤ 6.0 GHz
- Frequency Band Mode is Spurious and center frequency is ≤ 4.0 GHz

This command is not available in the following condition.

[MS269xA]
- MS2690A is used.

[MS2830A, MS2840A, MS2850A]
- MS2830A-040/041/043 is used.
- MS2840A-040/041 is used.

Example of Use

To set the peaking bias value to 100.

POW:PADJ 100
2.18 Other Settings

[:SENSe]:POWer[:RF]:PADJust?
Pre-selector Tune Query

Function
This command queries the Preselector peaking bias value.

Query
[:SENSe]:POWer[:RF]:PADJust?

Response
<freq>

Parameter
<freq> Peaking bias value
  Range –128 to 127
  Resolution 1

Details
This command is not available in the following conditions:
[MS269xA]
  • MS2690A is used.
[MS2830A], [MS2840A], [MS2850A]
  • MS2830A-040/041/043 is used.
  • MS2840A-040/041 is used.

Example of Use
To query the peaking bias value.
POW:PADJ?
> 100
:CALibration:RCLock[:VALue] <integer>
Adjust Reference Clock

Function
This command sets the adjustment value for the internal reference signal oscillator (Reference Clock).

Command
:CALibration:RCLock[:VALue] <integer>

Parameter
<integer> Adjustment value

Range
0 to 1023 (MS2830A)
0 to 4095 (MS2840A)
0 to 4095 (MS2850A)

Resolution 1

Example of Use
To set the adjustment value of the internal reference signal oscillator to 511
CAL:RCL 511

:CALibration:RCLock[:VALue]?
Adjust Reference Clock Query

Function
This command queries the adjustment value of the internal reference signal oscillator (Reference Clock).

Query
:CALibration:RCLock[:VALue]?

Response
<integer>

Parameter
<integer> Adjustment value

Range
0 to 1023 (MS2830A)
0 to 4095 (MS2840A)
0 to 4095 (MS2850A)

Resolution 1

Example of Use
To query adjustment value 511 of the internal reference signal oscillator.
CAL:RCL?
> 511
:CALibration:RCLock[:VALue]:PRESet
Adjust Reference Clock Preset

Function
This command resets the adjustment value of the internal reference signal oscillator (Reference Clock).

Command
:CALibration:RCLock[:VALue]:PRESet

Example of Use
To reset the adjustment value of the internal reference signal oscillator.
CAL:RCL:PRES

[:SENSe]:POWer[:RF]:MW:PRESelector[:STATe] ON|OFF|1|0
Micro Wave Preselector Bypass

Function
This command sets the Micro Wave Preselector Bypass.

Command
[:SENSe]:POWer[:RF]:MW:PRESelector[:STATe] <switch>

Parameter

<table>
<thead>
<tr>
<th>&lt;switch&gt;</th>
<th>Microwave Preselector Bypass</th>
</tr>
</thead>
<tbody>
<tr>
<td>ON</td>
<td>1</td>
</tr>
<tr>
<td>OFF</td>
<td>0</td>
</tr>
<tr>
<td>Default</td>
<td>OFF</td>
</tr>
</tbody>
</table>

Details
This function is available when Option 067/167 is installed for MS269xA.
This function is available when Option 007/067/167 is installed for MS2830A.
This function is available when Option 067/167 is installed for MS2840A.

Example of Use
To set the Micro Wave Preselector Bypass.
POW:MW:PRES ON
[:SENSe]:POWer[:RF]:MW:PRESelector[:STATe]?
Micro Wave Preselector Bypass Query

Function
This command queries the Micro Wave Preselector Bypass.

Query
[:SENSe]:POWer[:RF]:MW:PRESelector[:STATe]?

Response
<status>

Parameter
<status> Microwave Preselector Bypass
1 Enables bypassing
0 Disables bypassing

Details
This function is available when Option 067/167 is installed for MS269xA.
This function is available when Option 007/067/167 is installed for MS2830A.
This function is available when Option 067/167 is installed for MS2840A.

Example of Use
To query the Micro Wave Preselector Bypass status.
POW:MW:PRES?
> 1
2.19 QUEStionable Status Register

The figure below shows the layer structure of the QUEStionable status register.

![Figure 2.19-1 QUEStionable Status Register]

<table>
<thead>
<tr>
<th>Byte definition of QUEStionable Status Register</th>
</tr>
</thead>
<tbody>
<tr>
<td>DB9</td>
</tr>
<tr>
<td>NOT USED</td>
</tr>
<tr>
<td>NOT USED</td>
</tr>
<tr>
<td>NOT USED</td>
</tr>
<tr>
<td>NOT USED</td>
</tr>
<tr>
<td>Uncal</td>
</tr>
<tr>
<td>NOT USED</td>
</tr>
<tr>
<td>Level Over</td>
</tr>
<tr>
<td>NOT USED</td>
</tr>
<tr>
<td>NOT USED</td>
</tr>
<tr>
<td>NOT USED</td>
</tr>
<tr>
<td>NOT USED</td>
</tr>
<tr>
<td>NOT USED</td>
</tr>
<tr>
<td>NOT USED</td>
</tr>
<tr>
<td>NOT USED</td>
</tr>
<tr>
<td>NOT USED</td>
</tr>
<tr>
<td>NOT USED</td>
</tr>
</tbody>
</table>

![Figure 2.19-2 QUEStionable Measure Register]

<table>
<thead>
<tr>
<th>Byte definition of QUEStionable Measure Register</th>
</tr>
</thead>
<tbody>
<tr>
<td>DB3</td>
</tr>
<tr>
<td>DB5</td>
</tr>
</tbody>
</table>
Table 2.19-3 lists device messages for the QUEStionable status register.

### Table 2.19-3  Device messages for QUEStionable Status Register

<table>
<thead>
<tr>
<th>Function</th>
<th>Device message</th>
</tr>
</thead>
<tbody>
<tr>
<td>Questionable Status Register</td>
<td>:STATus:QUEStionable[:EVENt]?</td>
</tr>
<tr>
<td>Event</td>
<td></td>
</tr>
<tr>
<td>Questionable Status Register</td>
<td>:STATus:QUEStionable:CONDition?</td>
</tr>
<tr>
<td>Condition</td>
<td></td>
</tr>
<tr>
<td>Questionable Status Register</td>
<td>:STATus:QUEStionable:ENABle &lt;integer&gt;</td>
</tr>
<tr>
<td>Enable</td>
<td>:STATus:QUEStionable:ENABle?</td>
</tr>
<tr>
<td>Questionable Status Register</td>
<td>:STATus:QUEStionable:NTRansition &lt;integer&gt;</td>
</tr>
<tr>
<td>Negative Transition</td>
<td>:STATus:QUEStionable:NTRansition?</td>
</tr>
<tr>
<td>Questionable Status Register</td>
<td>:STATus:QUEStionable:PTRansition &lt;integer&gt;</td>
</tr>
<tr>
<td>Positive Transition</td>
<td>:STATus:QUEStionable:PTRansition?</td>
</tr>
<tr>
<td>Questionable Measure Register</td>
<td>:STATus:QUEStionable:MEASure[:EVENt]?</td>
</tr>
<tr>
<td>Event</td>
<td></td>
</tr>
<tr>
<td>Questionable Measure Register</td>
<td>:STATus:QUEStionable:MEASure:CONDition?</td>
</tr>
<tr>
<td>Condition</td>
<td></td>
</tr>
<tr>
<td>Questionable Measure Register</td>
<td>:STATus:QUEStionable:MEASure:ENABle &lt;integer&gt;</td>
</tr>
<tr>
<td>Enable</td>
<td>:STATus:QUEStionable:MEASure:ENABle?</td>
</tr>
<tr>
<td>Questionable Measure Register</td>
<td>:STATus:QUEStionable:MEASure:NTRansition &lt;integer&gt;</td>
</tr>
<tr>
<td>Negative Transition</td>
<td>:STATus:QUEStionable:MEASure:NTRansition?</td>
</tr>
<tr>
<td>Questionable Measure Register</td>
<td>:STATus:QUEStionable:MEASure:PTRansition &lt;integer&gt;</td>
</tr>
<tr>
<td>Positive Transition</td>
<td>:STATus:QUEStionable:MEASure:PTRansition?</td>
</tr>
</tbody>
</table>
:STATus:QUEStionable[:EVENt]?

Questionable Status Register Event

Function

This command queries the event register of the QUEStionable status register.

Query

:STATus:QUEStionable[:EVENt]?

Response

<integer>

Parameter

<integer> Total bytes of event register
  Resolution 1
  Range 0 to 65535

Details

This command is available only in the SCPI mode.

Example of Use

To query the contents of the event register of the QUEStionable status register.
STAT:QUES?
> 0
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:STATus:QUEStionable:CONDition?
Questionable Status Register Condition

**Function**

This command queries the condition register of the QUEStionable status register.

**Query**

:STATus:QUEStionable:CONDition?

**Response**

<integer>

**Parameter**

<integer>  Total byte of condition register

| Resolution | 1 |
| Range      | 0 to 65535 |

**Example of Use**

To query the contents of the condition register of the QUEStionable status register.

STAT:QUES:COND?
> 0
:STATus:QUEStionable:ENABle <integer>
Questionable Status Register Enable

Function
This command sets the event enable register of the QUEStionable status register.

Command
:STATus:QUEStionable:ENABle <integer>

Parameter
<integer> Total byte of event enable register
Resolution 1
Range 0 to 65535

Details
This command is available only in the SCPI mode.

Example of Use
To set the event enable register of the QUEStionable status register to 16.
STAT:QUE:ENAB 16
:STATus:QUESTionable:ENABle?
Questionable Status Register Enable Query

Function
This command queries the event enable register of the QUESTionable status register.

Query
:STATus:QUESTionable:ENABle?

Response
<integer>

Parameter
<integer> Total byte of the event enable register
Resolution 1
Range 0 to 65535

Example of Use
To query the event enable register of the QUESTionable status register.
STAT:QUES:ENAB?
> 16
:STATus:QUESTionable:NTRansition <integer>
Questionable Status Register Negative Transition

Function
This command sets the transition filter (negative direction change) of the QUESTionable status register.

Command
:STATus:QUESTionable:NTRansition <integer>

Parameter
<integer> Total byte of transition filter (negative direction change)
Resolution 1
Range 0 to 65535

Details
This command is available only in the SCPI mode.

Example of Use
To set the transition filter (negative direction change) of the QUESTionable status register to 16.
STAT:QUES:NTR 16

:STATus:QUESTionable:NTRansition?
Questionable Status Register Negative Transition Query

Function
This command queries the transition filter (negative direction change) of the QUESTionable status register.

Query
:STATus:QUESTionable:NTRansition?

Response
<integer>

Parameter
<integer> Total byte of transition filter (negative direction change)
Resolution 1
Range 0 to 65535
Example of Use

To query the transition filter (negative direction change) of the QUESTIONable status register.

```
STAT:QUES:NTR?
> 16
```

:`STATus:QUESTionable:PTRansition <integer>`

Questionable Status Register Positive Transition

Function

This command sets the transition filter (positive direction change) of the QUESTIONable status register.

Command

```
:STATus:QUESTionable:PTRansition <integer>
```

Parameter

```
<integer> Total byte of transition filter (positive direction change)
Resolution 1
Range 0 to 65535
```

Details

This command is available only in the SCPI mode.

Example of Use

To set the transition filter (positive direction change) of the QUESTIONable status register to 16.

```
STAT:QUES:PTR 16
```
:STATus:QUEStionable:PTRansition?
Questionable Status Register Positive Transition Query

Function
This command queries the transition filter (positive direction change) of the QUEStionable status register.

Query
:STATus:QUEStionable:PTRansition?

Response
<integer>

Parameter
<integer> Total byte of transition filter (positive direction change)
Resolution 1
Range 0 to 65535

Example of Use
To query the transition filter (positive direction change) of the QUEStionable status register.
STAT:QUEs:PTR?
> 16
Chapter 2  SCPI Device Message Details

:STATus:QUEStionable:MEASure[EVENt]?
Questionable Measure Register Event

Function
This command queries the event register of the QUEStionable Measure register.

Query
:STATus:QUEStionable:MEASure[EVENt]?

Response
<integer>

Parameter
<integer>  Total byte of event register
Resolution  1
Range      0 to 65535

Example of Use
To query the contents of the event register of the QUEStionable Measure register.
STAT:QUES:MEAS?
> 0

:STATus:QUEStionable:MEASure:CONDition?
Questionable Measure Register Condition

Function
This command queries the condition register of the QUEStionable Measure register.

Query
:STATus:QUEStionable:MEASure:CONDition?

Response
<integer>

Parameter
<integer>  Total byte of condition register
Resolution  1
Range      0 to 65535
Example of Use

To query the contents of the condition register of the QUESTIONable Measure register.
```
STAT:QUES:MEAS:COND?
> 0
```

:STATus:QUEStionable:MEASure:ENABle <integer>

Questionable Measure Register Enable

Function

This command sets the event enable register of the QUESTIONable Measure register.

Command

```
:STATus:QUEStionable:MEASure:ENABle <integer>
```

Parameter

```
<integer> Total byte of event enable register
Resolution 1
Range 0 to 65535
```

Details

This command is available only in the SCPI mode.

Example of Use

To set the event enable register of the QUESTIONable Measure register to 16.
```
STAT:QUES:MEAS:ENAB 16
```
:STATus:QUEStionable:MEASure:ENABle?
Questionable Measure Register Enable Query

Function

This command queries the event enable register of the QUEStionable Measure register.

Query

:STATus:QUEStionable:MEASure:ENABle?

Response

<integer>

Parameter

<integer>  Total byte of event enable register
  Resolution  1
  Range  0 to 65535

Example of Use

To query the event enable register of the QUEStionable Measure register.
STAT:QUES:MEAS:ENAB?
> 16
:STATus:QUESTionable:MEASure:NTRansition <integer>
Questionable Measure Register Negative Transition

Function
This command sets the transition filter (negative direction change) of the QUESTionable Measure register.

Command
:STATus:QUESTionable:MEASure:NTRansition <integer>

Parameter
<integer> Total byte of transition filter (negative direction change)
Resolution 1
Range 0 to 65535

Details
This command is available only in the SCPI mode.

Example of Use
To set the transition filter (negative direction change) of the QUESTionable Measure register to 16.
STAT:QUES:MEAS:NTR 16

:STATus:QUESTionable:MEASure:NTRansition?
Questionable Measure Register Negative Transition Query

Function
This command queries the transition filter (negative direction change) of the QUESTionable Measure register.

Query
:STATus:QUESTionable:MEASure:NTRansition?

Response
<integer>

Parameter
<integer> Total byte of transition filter (negative direction change)
Resolution 1
Range 0 to 65535
Example of Use

To query the transition filter (negative direction change) of the QUESTIONable Measure register.

`STAT:QUES:MEAS:NTR?`  
`> 16`

`:STATus:QUESTionable:MEASure:PTRansition <integer>

Questionable Measure Register Positive Transition

Function

This command sets the transition filter (positive direction change) of the QUESTIONable Measure register.

Command

`:STATus:QUESTionable:MEASure:PTRansition <integer>`

Parameter

`<integer>` Total byte of transition filter (positive direction change)  
Resolution 1  
Range 0 to 65535

Details

This command is available only in the SCPI mode.

Example of Use

To set the transition filter (positive direction change) of the QUESTIONable Measure register to 16.

`STAT:QUES:MEAS:PTR 16`
:STATus:QUESTionable:MEASure:PTRansition?
Questionable Measure Register Positive Transition Query

Function
This command queries the transition filter (positive direction change) of the QUEStionable Measure register.

Query
:STATus:QUESTionable:MEASure:PTRansition?

Response
<integer>

Parameter
<integer> Total byte of transition filter (positive direction change)
Resolution 1
Range 0 to 65535

Example of Use
To query the transition filter (positive direction change) of the QUEStionable Measure register.
STAT:QUES:MEAS:PTR?
> 16
2.20 OPERation Status Register

The figure below shows the layer structure of the OPERation Status Register.

<table>
<thead>
<tr>
<th>Byte</th>
<th>Meaning</th>
</tr>
</thead>
<tbody>
<tr>
<td>DB0</td>
<td>CAL is being executed.</td>
</tr>
<tr>
<td>DB1</td>
<td>Warm Up Message is being displayed.</td>
</tr>
<tr>
<td>DB3</td>
<td>Sweeping</td>
</tr>
<tr>
<td>DB5</td>
<td>Waiting for trigger.</td>
</tr>
<tr>
<td>DB7</td>
<td>Status Byte Register</td>
</tr>
</tbody>
</table>

Figure 2.20-1 OPERation Status Register

Table 2.20-1 OPERation Status Register
The table below shows device messages for the OPERation status register.

<table>
<thead>
<tr>
<th>Function</th>
<th>Device message</th>
</tr>
</thead>
<tbody>
<tr>
<td>Operation Status Register Event</td>
<td>:STATus:OPERation[:EVENt]?</td>
</tr>
<tr>
<td>Operation Status Register Condition</td>
<td>:STATus:OPERation:CONDition?</td>
</tr>
<tr>
<td>Operation Status Register Enable</td>
<td>:STATus:OPERation:ENABLE &lt;integer&gt;</td>
</tr>
<tr>
<td></td>
<td>:STATus:OPERation:ENABLE?</td>
</tr>
<tr>
<td>Operation Status Register Negative Transition</td>
<td>:STATus:OPERation:NTRansition &lt;integer&gt;</td>
</tr>
<tr>
<td></td>
<td>:STATus:OPERation:NTRansition?</td>
</tr>
<tr>
<td>Operation Status Register Positive Transition</td>
<td>:STATus:OPERation:PTRansition &lt;integer&gt;</td>
</tr>
<tr>
<td></td>
<td>:STATus:OPERation:PTRansition?</td>
</tr>
</tbody>
</table>
:STATus:OPERation[:EVENt]?
Operation Status Register Event

Function
This command queries the event register of the OPERation Status Register.

Query
:STATus:OPERation[:EVENt]?

Response
<integer>

Parameter
<integer>  Total byte of event register
Resolution   1
Range        0 to 65535

Details
This command is available only in the SCPI mode.

Example of Use
To query the event register of the OPERation Status Register.
STAT:OPER?
> 0
:STATus:OPERation:CONDition?

Operation Status Register Condition

Function

This command queries the condition register of the OPERation Status Register.

Query

:STATus:OPERation:CONDition?

Response

<integer>

Parameter

<integer>  Total byte of condition register
Resolution   1
Range      0 to 65535

Example of Use

To query the contents of the condition register of the OPERation Status Register.
STAT:OPER:COND?
> 0
:STATus:OPERation:ENABle <integer>
Operation Status Register Enable

Function

This command sets the event enable register of the OPERation status register.

Command

:STATus:OPERation:ENABle <integer>

Parameter

<integer> Total byte of event enable register
Resolution 1
Range 0 to 65535

Details

This command is available only in the SCPI mode.

Example of Use

To set the event enable register of the OPERation status register to 16.
STAT:OPER:ENAB 16

:STATus:OPERation:ENABle?
Operation Status Register Enable Query

Function

This command queries the event enable register of the OPERation status register.

Query

:STATus:OPERation:ENABle?

Response

<integer>

Parameter

<integer> Total byte of event enable register
Resolution 1
Range 0 to 65535
Example of Use

To query the event enable register of the OPERation status register.

```
STAT:OPER:ENAB?
> 16
```

`:STATus:OPERation:NTRansition <integer>

Operation Status Register Negative Transition

Function

This command sets the transition filter (negative direction change) of the OPERation status register.

Command

```
:STATus:OPERation:NTRansition <integer>
```

Parameter

```
<integer>  Total bytes of transition filter (negative direction change)
Resolution  1
Range       0 to 65535
```

Details

This command is available only in the SCPI mode.

Example of Use

To set the transition filter (negative direction change) of the OPERation status register to 16.

```
STAT:OPER:NTR 16
```
:STATus:OPERation:NTRansition?
Operation Status Register Negative Transition Query

Function
This command queries the transition filter (negative direction change) of the OPERation status register.

Query
:STATus:OPERation:NTRansition?

Response
<integer>

Parameter
<integer> Total byte of transition filter (negative direction change)
Resolution 1
Range 0 to 65535

Example of Use
To query the transition filter (negative direction change) of the OPERation status register.
STAT:OPER:NTR?
> 16
:STATus:OPERation:PTRansition <integer>

Operation Status Register Positive Transition

Function

This command sets the transition filter (positive direction change) of the OPERation status register.

Command

:STATus:OPERation:PTRansition <integer>

Parameter

<integer>  Total byte of transition filter (positive direction change)

Resolution 1
Range 0 to 65535

Details

This command is available only in the SCPI mode.

Example of Use

To set the transition filter (positive direction change) of the OPERation status register to 16.
STAT:OPER:PTR 16
Chapter 2  SCPI Device Message Details

:STATus:OPERation:PTRansition?
Operation Status Register Positive Transition Query

Function

This command queries the transition filter (positive direction change) of the OPERation status register.

Query

:STATus:OPERation:PTRansition?

Response

<integer>

Parameter

<integer>  Total byte of transition filter (positive direction change)

Resolution  1
Range  0 to 65535

Example of Use

To query the transition filter (positive direction change) of the OPERation status register.
STAT:OPER:PTR?
> 16
## 2.21 Setting External Mixer

Table 2.21-1 lists the device messages related to External Mixer settings.

<table>
<thead>
<tr>
<th>Function</th>
<th>Device message</th>
</tr>
</thead>
<tbody>
<tr>
<td>External Mixer Mode</td>
<td>[:SENSe]:MIXer[:STATe] ON</td>
</tr>
<tr>
<td></td>
<td>[:SENSe]:MIXer[:STATe]?</td>
</tr>
<tr>
<td>External Mixer Band</td>
<td>[:SENSe]:MIXer[:HARMonic]:BAND VHP</td>
</tr>
<tr>
<td></td>
<td>[:SENSe]:MIXer[:HARMonic]:BAND?</td>
</tr>
<tr>
<td>External Mixer Bias</td>
<td>[:SENSe]:MIXer:BIAS &lt;bias&gt;</td>
</tr>
<tr>
<td></td>
<td>[:SENSe]:MIXer:BIAS?</td>
</tr>
<tr>
<td>External Mixer Cable Loss Value</td>
<td>[:SENSe]:MIXer:CABLE:LOSS &lt;power&gt;</td>
</tr>
<tr>
<td></td>
<td>[:SENSe]:MIXer:CABLE:LOSS?</td>
</tr>
<tr>
<td>External Mixer Conversion Loss Mode</td>
<td>[:SENSe]:MIXer:LOSS:MODE FIXed</td>
</tr>
<tr>
<td></td>
<td>[:SENSe]:MIXer:LOSS:MODE?</td>
</tr>
<tr>
<td>External Mixer Conversion Loss Fixed Value</td>
<td>[:SENSe]:MIXer:LOSS[:FIXed] &lt;power&gt;</td>
</tr>
<tr>
<td></td>
<td>[:SENSe]:MIXer:LOSS[:FIXed]?</td>
</tr>
<tr>
<td>External Mixer Conversion Loss Table</td>
<td>[:SENSe]:MIXer:LOSS:TABLe</td>
</tr>
<tr>
<td>PS function (Center Frequency)</td>
<td>[:SENSe]:MIXer:PS[:CENTer] ON</td>
</tr>
<tr>
<td></td>
<td>[:SENSe]:MIXer:PS[:CENTer]?</td>
</tr>
<tr>
<td>Signal Identifier</td>
<td>[:SENSe]:MIXer:SIGNal ON</td>
</tr>
<tr>
<td></td>
<td>[:SENSe]:MIXer:SIGNal?</td>
</tr>
<tr>
<td>Signal Identifier Mode</td>
<td>[:SENSe]:MIXer:SIGNal:MODE ISHift</td>
</tr>
<tr>
<td></td>
<td>[:SENSe]:MIXer:SIGNal:MODE?</td>
</tr>
<tr>
<td>External Mixer Calibration</td>
<td>[:SENSe]:MIXer:CALibration</td>
</tr>
</tbody>
</table>
Chapter 2  SCPI Device Message Details

[:SENSe]:MIXer[:STATe] ON|OFF|1|0
External Mixer Mode

Function
This command switches between Internal and External Mixer.

Command
[:SENSe]:MIXer[:STATe] <switch>

Parameter
<switch> External mixer switch
ON|1 Selects External Mixer
OFF|0 Selects Internal Mixer

Details
This function is available when Option 044/045 is installed for MS2830A.
This function is available when Option 044/046 is installed for MS2840A.
This function is readily available for MS2850A.

Example of Use
To use external mixer.
MIX ON

[:SENSe]:MIXer[:STATe]?
External Mixer Mode Query

Function
This command queries the current mixer mode.

Query
[:SENSe]:MIXer[:STATe]?

Response
<status>

Parameter
<status> External mixer switch
1 Selects External Mixer
0 Selects Internal Mixer

Details
This function is available when Option 044/045 is installed for MS2830A.
This function is available when Option 044/046 is installed for MS2840A.
This function is readily available for MS2850A.

Example of Use
To query the current mixer mode.
MIX?
> 1
2.21 Setting External Mixer

[:SENSe]:MIXer[:HARMonics]:BAND VHP|EHP|A|Q|U|V|E|W|F|D|G|Y|J

External Mixer Band

Function

This command selects external mixer band.

Command

[:SENSe]:MIXer[:HARMonics]:BAND <band>

Parameter

<table>
<thead>
<tr>
<th>&lt;band&gt;</th>
<th>External mixer band</th>
</tr>
</thead>
<tbody>
<tr>
<td>VHP</td>
<td>High Performance Waveguide Mixer</td>
</tr>
<tr>
<td></td>
<td>Band VHP (50.0 to 75.0 GHz, 8+)</td>
</tr>
<tr>
<td>EHP</td>
<td>High Performance Waveguide Mixer</td>
</tr>
<tr>
<td></td>
<td>Band EHP (60.0 to 90.0 GHz, 12–)</td>
</tr>
<tr>
<td>A</td>
<td>Band A (26.5 to 40.0 GHz, 4+)</td>
</tr>
<tr>
<td>Q</td>
<td>Band Q (33.0 to 50.0 GHz, 5+)</td>
</tr>
<tr>
<td>U</td>
<td>Band U (40.0 to 60.0 GHz, 6+)</td>
</tr>
<tr>
<td>V</td>
<td>Band V (50.0 to 75.0 GHz, 8+)</td>
</tr>
<tr>
<td>E</td>
<td>Band E (60.0 to 90.0 GHz, 9+)</td>
</tr>
<tr>
<td>W</td>
<td>Band W (75.0 to 110.0 GHz, 11+)</td>
</tr>
<tr>
<td>F</td>
<td>Band F (90.0 to 140.0 GHz, 14+)</td>
</tr>
<tr>
<td>D</td>
<td>Band D (110.0 to 170.0 GHz, 17+)</td>
</tr>
<tr>
<td>G</td>
<td>Band G (140.0 to 220.0 GHz, 22+)</td>
</tr>
<tr>
<td>Y</td>
<td>Band Y (170.0 to 260.0 GHz, 26+)</td>
</tr>
<tr>
<td>J</td>
<td>Band J (220.0 to 325.0 GHz, 33+)</td>
</tr>
</tbody>
</table>

Details

This function is available when Option 044/045 is installed for MS2830A.
This function is available when Option 044/046 is installed for MS2840A.
This function is readily available for MS2850A.

Example of Use

To set the external mixer band to Band U.

MIX:BAND U
Chapter 2  SCPI Device Message Details

[:SENSe]:MIXer[:HARMonic]:BAND?
External Mixer Band Query

Function

This command queries the current external mixer band.

Query

[:SENSe]:MIXer[:HARMonic]:BAND?

Response

<band>

Parameter

<band>  External mixer band
VHP   High Performance Waveguide Mixer
      Band VHP (50.0 to 75.0 GHz, 8+)
EHP   High Performance Waveguide Mixer
      Band EHP (60.0 to 90.0 GHz, 12–)
A     Band A (26.5 to 40.0 GHz, 4+)
Q     Band Q (33.0 to 50.0 GHz, 5+)
U     Band U (40.0 to 60.0 GHz, 6+)
V     Band V (50.0 to 75.0 GHz, 8+)
E     Band E (60.0 to 90.0 GHz, 9+)
W     Band W (75.0 to 110.0 GHz, 11+)
F     Band F (90.0 to 140.0 GHz, 14+)
D     Band D (110.0 to 170.0 GHz, 17+)
G     Band G (140.0 to 220.0 GHz, 22+)
Y     Band Y (170.0 to 260.0 GHz, 26+)
J     Band J (220.0 to 325.0 GHz, 33+)

Details

This function is available when Option 044/045 is installed for MS2830A.
This function is available when Option 044/046 is installed for MS2840A.
This function is readily available for MS2850A.

Example of Use

To query the current external mixer band.
MIX:BAND?
>  U
[:SENSe]:MIXer:BIAS <bias>

External Mixer Bias

Function

This command sets the external mixer's bias current.

Command

[:SENSe]:MIXer:BIAS <bias>

Parameter

<table>
<thead>
<tr>
<th>&lt;bias&gt;</th>
<th>External mixer's bias current</th>
</tr>
</thead>
<tbody>
<tr>
<td>Range</td>
<td>0.0 to 20.0 mA</td>
</tr>
<tr>
<td>Resolution</td>
<td>0.1 mA</td>
</tr>
<tr>
<td>Suffix Code</td>
<td>NA,UA,MA,A</td>
</tr>
<tr>
<td>Default</td>
<td>0.0 mA</td>
</tr>
</tbody>
</table>

mA is used when omitted.

Details

This function is available when Option 044/045 is installed for MS2830A.
This function is available when Option 044/046 is installed for MS2840A.
This function is readily available for MS2850A.
A value can be set per external mixer band.
When using High Performance Waveguide Mixer, the external mixer's bias current is fixed to 0.0 mA.

Example of Use

To set the external mixer's bias current to 10 mA.

MIX:BIAS 10MA
[:SENSe]:MIXer:BIAS?
External Mixer Bias Query

Function
This command queries the current external mixer's bias current.

Query
[:SENSe]:MIXer:BIAS?

Response
<bias>

Parameter
<bias> External mixer's bias current
Range 0.1 to 20.0 mA
Resolution 0.1 mA
Suffix code None, value is returned in mA units.

Details
This function is available when Option 044/045 is installed for MS2830A.
This function is available when Option 044/046 is installed for MS2840A.
This function is readily available for MS2850A.
One value is held per external mixer band.
When using High Performance Waveguide Mixer, the external mixer's bias current is fixed to 0.0 mA.

Example of Use
To query the current external mixer's bias current.
MIX:BIAS?
> 20.0
Setting External Mixer

2.21 Setting External Mixer

[:SENSe]:MIXer:CABLe:LOSS <power>
External Mixer Cable Loss Value

Function
This command sets the external mixer cable loss value.

Command
[:SENSe]:MIXer:CABLe:LOSS <power>

Parameter

<table>
<thead>
<tr>
<th>&lt;power&gt;</th>
<th>External Mixer Cable Loss</th>
</tr>
</thead>
<tbody>
<tr>
<td>Range</td>
<td>0.00 to 99.99 dB</td>
</tr>
<tr>
<td>Resolution</td>
<td>0.01 dB</td>
</tr>
<tr>
<td>Suffix Code</td>
<td>DB</td>
</tr>
<tr>
<td></td>
<td>dB is used when omitted.</td>
</tr>
<tr>
<td>Default</td>
<td>0.00 dB</td>
</tr>
</tbody>
</table>

Details
This function is available when Option 044/045 is installed for MS2830A.
This function is available when Option 044/046 is installed for MS2840A.
This function is readily available for MS2850A.

Example of Use
To set the external mixer cable loss value to 10 dB.
MIX:CABL:LOSS 10DB
Chapter 2  SCPI Device Message Details

[SENSe]:MIXer:CABLe:LOSS?
External Mixer Cable Loss Value Query

Function

This command queries the external mixer cable loss value.

Query

[:SENSe]:MIXer:CABLe:LOSS?

Response

<power>

Parameter

<power>  External Mixer Cable Loss
          Range      0.00 to 99.99 dB
          Resolution 0.01 dB
          Suffix code None. Value is returned in dB units.

Details

This function is available when Option 044/045 is installed for MS2830A.
This function is available when Option 044/046 is installed for MS2840A.
This function is readily available for MS2850A.

Example of Use

To query the external mixer cable loss value.
MIX:CABL:LOSS?
> 10.00
2.21 Setting External Mixer

[:SENSe]:MIXer:LOSS:MODE FIXed|TABLe
External Mixer Conversion Loss Mode

Function

This command sets the conversion loss mode of the external mixer in the current band.

Command

[:SENSe]:MIXer:LOSS:MODE <type>

Parameter

<table>
<thead>
<tr>
<th>&lt;type&gt;</th>
<th>Conversion Loss Mode of External Mixer</th>
</tr>
</thead>
<tbody>
<tr>
<td>FIXed</td>
<td>A fixed value is used.</td>
</tr>
<tr>
<td>TABLE</td>
<td>A loaded table value is used.</td>
</tr>
<tr>
<td>Default</td>
<td>FIXed</td>
</tr>
</tbody>
</table>

Details

This function is available when Option 044/045 is installed for MS2830A.
This function is available when Option 044/046 is installed for MS2840A.
This function is readily available for MS2850A.

Example of Use

To set the conversion loss mode of the external mixer to a fixed value.
MIX:LOSS:MODE FIX
[:SENSe]:MIXer:LOSS:MODE?

External Mixer Conversion Loss Mode Query

Function

This command queries the conversion loss mode of the external mixer in the current band.

Query

[:SENSe]:MIXer:LOSS:MODE?

Response

<type>

Parameter

<type>  Conversion Loss Mode of External Mixer
FIX     A fixed value is used.
TABL    A loaded table value is used.

Details

This function is available when Option 044/045 is installed for MS2830A.
This function is available when Option 044/046 is installed for MS2840A.
This function is readily available for MS2850A.

Example of Use

To query the conversion loss mode of the external mixer.
MIX:LOSS:MODE?
> FIX
[SENSe]:MIXer:LOSS[:FIXed] <power>
External Mixer Conversion Loss Fixed Value

**Function**

This command sets the external mixer's fixed conversion loss.

**Command**

[:SENSe]:MIXer:LOSS[:FIXed] <power>

**Parameter**

- **<power>** Conversion Loss of External Mixer
  - Range: 0.00 to 99.99 dB
  - Resolution: 0.01 dB
  - Suffix Code: DB
    - dB is used when omitted.
  - Default: 15.00 dB

**Details**

This function is available when Option 044/045 is installed for MS2830A.
This function is available when Option 044/046 is installed for MS2840A.
This function is readily available for MS2850A.
A value can be set per external mixer band.

**Example of Use**

To set the external mixer's fixed conversion loss to 10 dB.

MIX:LOSS 10DB
[:SENSe]:MIXer:LOSS[:FIXed]?
External Mixer Conversion Loss Fixed Value Query

Function
This command queries the external mixer's fixed conversion loss.

Query
[:SENSe]:MIXer:LOSS[:FIXed]?

Response
<power>

Parameter
<power> Conversion Loss of External Mixer
Range 0.00 to 99.99 dB
Resolution 0.01 dB
Suffix code None. Value is returned in dB units.

Details
This function is available when Option 044/045 is installed for MS2830A.
This function is available when Option 044/046 is installed for MS2840A.
This function is readily available for MS2850A.
One value is held per external mixer band.

Example of Use
To query the current external mixer's fixed conversion loss.
MIX:LOSS?
> 10.00
2.21 Setting External Mixer

[:SENSe]:MIXer:LOSS:TABLE
External Mixer Conversion Loss Table

Function

This command loads the conversion loss table of the external mixer from the USB memory stick.

Command

[:SENSe]:MIXer:LOSS:TABLE

Details

This function is available when Option 044/045 is installed for MS2830A.
This function is available when Option 044/046 is installed for MS2840A.
This function is readily available for MS2850A.
It is only available for High Performance Waveguide Mixer.
One table can be loaded per external mixer band.

Example of Use

To load the conversion loss table of the external mixer from the USB memory stick.
MIX:LOSS:TABLE
[:SENSe]:MIXer:LOSS:TABLE:SERial?

External Mixer Conversion Loss Table Serial Number Query

Function

This command queries the serial number of the external mixer conversion loss table.

Query

[:SENSe]:MIXer:LOSS:TABLE:SERial?

Response

<number>

Parameter

<number>  

External Mixer Conversion Loss Table Serial Number

Suffix code  None.

“***” is returned when the conversion loss table of the external mixer is not loaded.

Details

This function is available when Option 044/045 is installed for MS2830A.
This function is available when Option 044/046 is installed for MS2840A.
This function is readily available for MS2850A.
One value is held per external mixer band.

Example of Use

To query the serial number of the current external mixer conversion loss table.
MIX:LOSS:TABL:SER?
> 123456-1
PS Function

This command enables/disables the PS function, which reverses the frequency polarity at the center frequency when using High Performance Waveguide Mixer.

Command

[:SENSe]:MIXer:PS[:Center] <switch>

Parameter

<switch>          PS function
    ON|1            Enables PS function.
    OFF|0           Disables PS function.
    Default        Off

Details

This function is available when Option 044/045 is installed for MS2830A.
This function is available when Option 044/046 is installed for MS2840A.
This function is readily available for MS2850A.
It is only available for High Performance Waveguide Mixer.
This function cannot be set to On when Signal ID is On.

Example of Use

To sweep while reversing the frequency polarity at the center frequency.

MIX:PS ON
PS Function Query

This command queries the state of PS function, which reverses the frequency polarity at the center frequency when using High Performance Waveguide Mixer.

Query

[:SENSe]:MIXer:PS[:Center]?

Response

<status>

Parameter

<table>
<thead>
<tr>
<th>&lt;status&gt;</th>
<th>PS function</th>
</tr>
</thead>
<tbody>
<tr>
<td>1</td>
<td>PS function is enabled.</td>
</tr>
<tr>
<td>0</td>
<td>PS function is disabled.</td>
</tr>
</tbody>
</table>

Details

This function is available when Option 044/045 is installed for MS2830A. This function is available when Option 044/046 is installed for MS2840A. This function is readily available for MS2850A.

Example of Use

To query the state of PS function, which reverses the frequency polarity at the center frequency.

\[ \text{MIX:PS?} \]

\[ > \, 1 \]
2.21 Setting External Mixer

[SENSe]:MIXer:SIGNAL ON|OFF|1|0

Signal Identifier

Function

This command enables/disables signal identifier operation, which identifies measured signal and image signal when external mixer is used.

Command

[SENSe]:MIXer:SIGNAL <switch>

Parameter

<switch>  
ON|1  Selects signal ID.
OFF|0  Does not select signal ID.
Default  OFF

Details

This function is available when Option 044/045 is installed for MS2830A.
This function is available when Option 044/046 is installed for MS2840A.
This function is readily available for MS2850A.
Signal ID cannot be set to On when the PS function is On.
Signal ID cannot be set to On when the Measure function is On.
Signal ID cannot be set to On when the Math function is other than Off.

Example of Use

To sweep while identifying measured signal and image signal.
MIX:SIGN ON
[:SENSe]:MIXer:SIGNal?

Signal Identifier Query

Function

This command queries the state of signal identifier operation, which identifies measured signal and image signal when external mixer is used.

Query

[:SENSe]:MIXer:SIGNal?

Response

<status>

Parameter

<status>  Signal ID
1        Selects signal ID.
0        Does not select signal ID.

Details

This function is available when Option 044/045 is installed for MS2830A. This function is available when Option 044/046 is installed for MS2840A. This function is readily available for MS2850A.

Example of Use

To query the state of signal identifier operation, which identifies measured signal and image signal.

MIX:SIGN?
> 1
[:SENSe]:MIXer:SIGNal:MODE ISHift|ISUPpress

Signal Identifier Mode

Function

This command sets the type of signal identifier operation, which identifies measured signal and image signal when external mixer is used.

Command

[:SENSe]:MIXer:SIGNal:MODE <type>

Parameter

<table>
<thead>
<tr>
<th>&lt;type&gt;</th>
<th>Signal Identifier Mode</th>
</tr>
</thead>
<tbody>
<tr>
<td>ISHift</td>
<td>Displays the sweep results of different polarities alternately.</td>
</tr>
<tr>
<td>ISUPpress</td>
<td>Displays the sweep results of different polarities after Minimum processing.</td>
</tr>
</tbody>
</table>

Default

ISHift

Details

This function is available when Option 044/045 is installed for MS2830A. This function is available when Option 044/046 is installed for MS2840A. This function is readily available for MS2850A.

Example of Use

To set the type of signal identifier operation, which identifies measured signal and image signal.

MIX:SIGN:MODE ISH
Chapter 2  SCPI Device Message Details

[:SENSe]:MIXer:SIGNal:MODE?
Signal Identifier Mode Query

Function
This command queries the type of signal identifier operation, which identifies measured signal and image signal when external mixer is used.

Query
[:SENSe]:MIXer:SIGNal:MODE?

Response
<type>

Parameter

<type>  Signal Identifier Mode
ISH  Displays the sweep results of different polarities alternately.
ISUP  Displays the sweep results of different polarities after Minimum processing.

Details
This function is available when Option 044/045 is installed for MS2830A.
This function is available when Option 044/046 is installed for MS2840A.
This function is readily available for MS2850A.

Example of Use
To query the type of signal identifier operation, which identifies measured signal and image signal.
MIX:SIGN:MODE?
> ISH
[:SENSe]:MIXer:CALibration
External Mixer Calibration

Function
This command executes the External Mixer Calibration function

Command
[:SENSe]:MIXer:CALibration

Details
This function is available only when MS2830A is installed with Option 044/045 and combined with High Performance Waveguide Mixer.
This function is available only when MS2840A is installed with Option 044/046 and combined with High Performance Waveguide Mixer.
This function is available only when MS2850A is combined with High Performance Waveguide Mixer.
This function cannot be performed when Measure function is On.
This function cannot be performed when Trigger is On.
This function cannot be performed when Gate is On.

Example of Use
To execute the External Mixer Calibration function
MIX:CAL
### 2.22 Setting Save on Event

Table 2.22-1 lists the device messages related to Save on Event settings.

<table>
<thead>
<tr>
<th>Function</th>
<th>Device message</th>
</tr>
</thead>
<tbody>
<tr>
<td>Event Mode</td>
<td>:MMEMory:STORe:EVENt ON</td>
</tr>
<tr>
<td></td>
<td>:MMEMory:STORe:EVENt?</td>
</tr>
<tr>
<td>Event Type</td>
<td>:MMEMory:STORe:EVENt:TYPE LFAi1</td>
</tr>
<tr>
<td></td>
<td>:MMEMory:STORe:EVENt:TYPE?</td>
</tr>
<tr>
<td>Save then Stop</td>
<td>:MMEMory:STORe:EVENt:STOP ON</td>
</tr>
<tr>
<td></td>
<td>:MMEMory:STORe:EVENt:STOP?</td>
</tr>
</tbody>
</table>
## Event Mode

This command sets whether to turn on or off the Save on Event function.

### Command

```
:MMEMory:STORe:EVENt <Switch>
```

### Parameter

<table>
<thead>
<tr>
<th>&lt;switch&gt;</th>
<th>Description</th>
</tr>
</thead>
<tbody>
<tr>
<td>ON</td>
<td>1</td>
</tr>
<tr>
<td>OFF</td>
<td>0</td>
</tr>
</tbody>
</table>

### Details

All traces are subject to the save operation by the Save on Event function.

### Example of Use

To set the Save on Event function to On.

```
:MMEM:STOR:EVEN ON
```
Chapter 2  SCPI Device Message Details

:MMEMory:STORe:EVENt?
Event Mode Query

Function

This command queries the setting of the Save on Event function.

Query

:MMEMory:STORe:EVENt?

Response

<Mode>

Parameter

<Mode>  Save on Event function
        1  The Save on Event function is set to ON.
        0  The Save on Event function is set to OFF.

Example of Use

To query the setting of the Save on Event function.
:MMEM:STOR:EVEN?
> 1
2.22 Setting Save on Event

:MMEMory:STORe:EVENt:TYPE LFAil|LPASs|MFAil|MPASs|SWEep

Event Type

Function

This command sets the event type that triggers the Save on Event function.

Command

:MMEMory:STORe:EVENt:TYPE <Type>

Parameter

<Type>    Event type
  LFAil    Saves a waveform if a Limit evaluation result is Fail.
            (Default)
  LPASs    Saves a waveform if a Limit evaluation result is Pass.
  MFAil    Saves a waveform if a Margin evaluation result is Fail.
  MPASs    Saves a waveform if a Margin evaluation result is Pass.
  SWEep    Saves a waveform whenever measurement is performed, regardless of the Limit evaluation result.

Example of Use

To set the event type that triggers the Save on Event function to Limit Pass.

:MMEM:STOR:EVEN:TYPE LPAS
:**:MEMORY:STORE:EVENT:TYPE?**

**Event Type Query**

**Function**

This command queries the setting of the event type that triggers the Save on the Event function.

**Query**

:**:MEMORY:STORE:EVENT:TYPE?**

**Response**

<Type>

**Parameter**

<Type>  
LFA  
Saves a waveform if a Limit evaluation result is Fail.  
(Default)

LPAS  
Saves a waveform if a Limit evaluation result is Pass.

MFA  
Saves a waveform if a Margin evaluation result is Fail.

MPAS  
Saves a waveform if a Margin evaluation result is Pass.

SWE  
Saves a waveform whenever measurement is performed, regardless of the Limit evaluation result.

**Example of Use**

To query the setting of the event type that triggers the Save on the Event function.

:**:MEMORY:STORE:EVENT:TYPE?**

> LPAS
:MMEMory:STORe:EVENt:STOP ON|OFF|1|0

Save then Stop

**Function**

This command sets whether to turn on or off the Save then Stop function that stops the file save operation once a file is saved by the Save on the Event function.

**Command**

:MMEMory:STORe:EVENt:STOP <switch>

**Parameter**

<switch>  
ON|1  
OFF|0  

Save then Stop  
Perform the Save on the Event function only once.

Continuous performs the Save on the Event function. (Default)

**Example of Use**

To turn on the Save then Stop function that stops the file save operation once a file is saved by the Save on the Event function.

:MMEM:STOR:EVEN:STOP ON
:MMEMory:STORe:EVENt:STOP?

Save then Stop Query

Function

This command queries the On/Off setting of the Save then Stop function that stops the file save operation once a file is saved by the Save on the Event function.

Query

:MMEMory:STORe:EVENt:STOP?

Response

<switch>

Parameter

<switch>          Save then Stop
                 1          Performs the Save on the Event function only once.
                 0          Continuously performs the Save on the Event function.

Example of Use

To query the On/Off setting of the Save then Stop function that stops the file save operation once a file is saved by the Save on the Event function.

:MMEM:STOR:EVEN:STOP?

> 1
2.23 Setting Noise Floor Reduction

Table 2.23-1 lists the device messages related to Noise Floor Reduction.

MS2690A, MS2691A, MS2692A, and MS2830A do not support this function.

<table>
<thead>
<tr>
<th>Function</th>
<th>Device message</th>
</tr>
</thead>
<tbody>
<tr>
<td>Noise Floor Reduction</td>
<td>[:SENSe]:CORRection:NOISe:FLOor ON</td>
</tr>
<tr>
<td></td>
<td>[:SENSe]:CORRection:NOISe:FLOor?</td>
</tr>
</tbody>
</table>
[:SENSe]:CORRection:NOISe:FLOor ON|OFF|1|0

Noise Floor Reduction

Function

This command enables or disables the Noise Floor Reduction function.

Command

[:SENSe]:CORRection:NOISe:FLOor <switch>

Parameter

<switch>

<table>
<thead>
<tr>
<th>ON</th>
<th>1</th>
<th>Enables or disables Noise Floor Reduction. Enables Noise Floor Reduction.</th>
</tr>
</thead>
<tbody>
<tr>
<td>OFF</td>
<td>0</td>
<td>Disables Noise Floor Reduction.</td>
</tr>
</tbody>
</table>

Details

This command is available only when the MS2840A-051/151 or MS2850A-051/151 is installed.

Example of Use

To enable the Noise Floor Reduction function.

CORR:NOIS:FLO ON
[SENSe]:CORRection:NOISe:FLOor?
Noise Floor Reduction Query

Function
This command queries the On/Off state of the Noise Floor Reduction function.

Query
[:SENSe]:CORRection:NOISe:FLOor?

Response
<switch>

Parameter
<switch> Noise Floor Reduction On/Off state
1 Noise Floor Reduction is On.
0 Noise Floor Reduction is Off.

Details
This command is available only when the MS2840A-051/151 or MS2850A-051/151 is installed.

Example of Use
To query the On/Off state of the Noise Floor Reduction function.
CORR:NOIS:FLO?
> 1
# Chapter 3 Native Device Message List

This chapter describes remote control commands for executing the spectrum analyzer function (hereinafter referred to as “this application”) using a list organized by functions. Refer to Chapter 4 “Native Device Message Details” for detailed specifications for each command. Refer to the MS2690A/MS2691A/MS2692A and MS2830A/MS2840A/MS2850A Signal Analyzer Operation Manual (Mainframe Remote Control) for detailed specifications on IEEE488.2 common device messages and application common device messages.

Some functions of this instrument only correspond to SCPI commands. You can perform a remote control of the function in Native mode by replacing the corresponding SCPI commands with Native ones.

Refer to Section 1.6.2 “How to use SCPI commands in Native mode” in MS2690A/MS2691A/MS2692A and MS2830A/MS2840A/MS2850A Signal Analyzer Operation Manual (Mainframe Remote Control) for the replacement. Also, refer to Chapter 2 “SCPI Device Messages” for detailed specifications on SCPI commands.

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| 3.2 | Application Common Device Messages | 3-5 |
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| 3.4 | Level Settings | 3-8 |
| 3.5 | RBW/VBW Settings | 3-9 |
| 3.6 | Marker Settings | 3-10 |
| 3.7 | Signal Search Settings | 3-13 |
| 3.8 | Trace Settings | 3-15 |
| 3.9 | Sweep/Trigger/Gate Settings | 3-18 |
| 3.10 | Measure Function Settings | 3-23 |
| 3.10.1 | Common Measure function settings | 3-23 |
| 3.10.2 | Adjacent channel power measurement function settings | 3-24 |
| 3.10.3 | Burst average power measurement function settings | 3-28 |
| 3.10.4 | Channel power measurement function settings | 3-29 |
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Chapter 3  Native Device Message List

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### 3.1 IEEE488.2 Common Device Messages

IEEE488.2 common device messages available in this application are shown in Table 3.1-1.

<table>
<thead>
<tr>
<th>Function</th>
<th>Command</th>
<th>Query</th>
<th>Response</th>
<th>Remarks</th>
</tr>
</thead>
</table>
| Identification    | ---     | *IDN? | ANRITSU, model, serial, version | model: Main unit model name  
|                   |         |       |          | serial: Main unit serial number  
|                   |         |       |          | version: Software package version |
| Operation Complete| *OPC    | *OPC? | 1        |                                              |
| Preset (All Application) | *RST | --- | --- |                                              |
| Self Test         | ---     | *TST? | result   | result: Self test results  
|                   |         |       |          | = 0 | 1 |
| Wait to Continue  | *WAI    | ---   | ---      |                                              |
| Clear Status      | +CLS    | ---   | ---      |                                              |
| Service Request Enable Register | *SRE byte | *SRE? | byte | byte =  
|                   |         |       |          | bit7: EESB7  
|                   |         |       |          | bit6: Not used  
|                   |         |       |          | bit5: ESB  
|                   |         |       |          | bit4: MAV  
|                   |         |       |          | bit3: EESB3 (ERROR Event)  
|                   |         |       |          | bit2: EESB2 (END Event)  
|                   |         |       |          | bit1: EESB1  
|                   |         |       |          | bit0: EESB0 |
| Status Byte Register | ---     | *STB? | byte | byte =  
|                   |         |       |          | bit7: EESB7  
|                   |         |       |          | bit6: MSS/RQS  
|                   |         |       |          | bit5: ESB  
|                   |         |       |          | bit4: MAV  
|                   |         |       |          | bit3: EESB3 (ERROR Event)  
|                   |         |       |          | bit2: EESB2 (END Event)  
|                   |         |       |          | bit1: EESB1  
<p>|                   |         |       |          | bit0: EESB0 |</p>
<table>
<thead>
<tr>
<th>Function</th>
<th>Command</th>
<th>Query</th>
<th>Response</th>
<th>Remarks</th>
</tr>
</thead>
<tbody>
<tr>
<td>Standard Event Status Enable</td>
<td>*ESE byte</td>
<td>*ESE?</td>
<td>byte</td>
<td></td>
</tr>
<tr>
<td>Register</td>
<td></td>
<td></td>
<td></td>
<td>byte =</td>
</tr>
<tr>
<td></td>
<td></td>
<td></td>
<td></td>
<td>bit7: Power on</td>
</tr>
<tr>
<td></td>
<td></td>
<td></td>
<td></td>
<td>bit6: User request</td>
</tr>
<tr>
<td></td>
<td></td>
<td></td>
<td></td>
<td>bit5: Command error</td>
</tr>
<tr>
<td></td>
<td></td>
<td></td>
<td></td>
<td>bit4: Execution error</td>
</tr>
<tr>
<td></td>
<td></td>
<td></td>
<td></td>
<td>bit3: Device error</td>
</tr>
<tr>
<td></td>
<td></td>
<td></td>
<td></td>
<td>bit2: Query error</td>
</tr>
<tr>
<td></td>
<td></td>
<td></td>
<td></td>
<td>bit1: Not used</td>
</tr>
<tr>
<td></td>
<td></td>
<td></td>
<td></td>
<td>bit0: Operation complete</td>
</tr>
</tbody>
</table>
### 3.2 Application Common Device Messages

Application common device messages available in this application are shown in Table 3.2-1.

<table>
<thead>
<tr>
<th>Function</th>
<th>Command</th>
<th>Query</th>
<th>Response</th>
<th>Remarks</th>
</tr>
</thead>
<tbody>
<tr>
<td><strong>Application Switch</strong></td>
<td>SYS apl,window</td>
<td>SYS? apl</td>
<td>status,window</td>
<td>apl: Application name</td>
</tr>
<tr>
<td></td>
<td></td>
<td></td>
<td></td>
<td>= SPECT</td>
</tr>
<tr>
<td></td>
<td></td>
<td></td>
<td></td>
<td>window: Window status</td>
</tr>
<tr>
<td></td>
<td></td>
<td></td>
<td></td>
<td>= ACT</td>
</tr>
<tr>
<td></td>
<td></td>
<td></td>
<td></td>
<td>status: Application execution status</td>
</tr>
<tr>
<td></td>
<td></td>
<td></td>
<td></td>
<td>= CURRENT</td>
</tr>
<tr>
<td><strong>Preset (All Applications)</strong></td>
<td>*RST</td>
<td></td>
<td>---</td>
<td>---</td>
</tr>
<tr>
<td><strong>Preset (Active Application Only)</strong></td>
<td>PRE</td>
<td></td>
<td>---</td>
<td>---</td>
</tr>
<tr>
<td></td>
<td>INI</td>
<td></td>
<td>---</td>
<td>---</td>
</tr>
<tr>
<td><strong>System Restart</strong></td>
<td>REBOOT</td>
<td></td>
<td>---</td>
<td>---</td>
</tr>
<tr>
<td><strong>LCD Power</strong></td>
<td>DISPLAY on_off</td>
<td>DISPLAY?</td>
<td>on_off</td>
<td>mode: Display mode</td>
</tr>
<tr>
<td></td>
<td></td>
<td></td>
<td></td>
<td>= NORMAL</td>
</tr>
<tr>
<td><strong>Error Display Mode</strong></td>
<td>REMDISP mode</td>
<td>REMDISP?</td>
<td>mode</td>
<td>---</td>
</tr>
<tr>
<td><strong>Save Parameter</strong></td>
<td>SVPRM</td>
<td></td>
<td>---</td>
<td>---</td>
</tr>
<tr>
<td></td>
<td>SVPRM fname,dev</td>
<td></td>
<td>---</td>
<td>---</td>
</tr>
<tr>
<td><strong>Recall Parameter</strong></td>
<td>RCPRM fname,apl</td>
<td></td>
<td>---</td>
<td>---</td>
</tr>
<tr>
<td></td>
<td>RCPRM fname,dev</td>
<td></td>
<td>---</td>
<td>---</td>
</tr>
<tr>
<td><strong>Hard Copy</strong></td>
<td>PRINT</td>
<td></td>
<td>---</td>
<td>---</td>
</tr>
<tr>
<td></td>
<td>PRINT fname,dev</td>
<td></td>
<td>---</td>
<td>---</td>
</tr>
<tr>
<td>Function</td>
<td>Command</td>
<td>Query</td>
<td>Response</td>
<td>Remarks</td>
</tr>
<tr>
<td>----------------------------------</td>
<td>-----------------------</td>
<td>---------</td>
<td>-----------</td>
<td>-------------------------------------------------------------------------</td>
</tr>
<tr>
<td>Hard Copy Mode</td>
<td>PMOD format</td>
<td>PMOD?</td>
<td>format</td>
<td>format: Specifies file format</td>
</tr>
<tr>
<td></td>
<td>PMOD</td>
<td>PMOD?</td>
<td>BMP</td>
<td>= BMP</td>
</tr>
<tr>
<td>END Event Status Enable Register</td>
<td>ESE2 n</td>
<td>ESE2?</td>
<td>byte</td>
<td>byte = Status bit</td>
</tr>
<tr>
<td></td>
<td></td>
<td></td>
<td></td>
<td>bit7: Not used</td>
</tr>
<tr>
<td></td>
<td></td>
<td></td>
<td></td>
<td>bit6: End Max/Min Hold</td>
</tr>
<tr>
<td></td>
<td></td>
<td></td>
<td></td>
<td>bit5: End Measure</td>
</tr>
<tr>
<td></td>
<td></td>
<td></td>
<td></td>
<td>bit4: End Average</td>
</tr>
<tr>
<td></td>
<td></td>
<td></td>
<td></td>
<td>bit3: Not used</td>
</tr>
<tr>
<td></td>
<td></td>
<td></td>
<td></td>
<td>bit2: Not used</td>
</tr>
<tr>
<td></td>
<td></td>
<td></td>
<td></td>
<td>bit1: Not used</td>
</tr>
<tr>
<td></td>
<td></td>
<td></td>
<td></td>
<td>bit0: End Sweep</td>
</tr>
<tr>
<td>END Event Status Register</td>
<td>---</td>
<td>ESR2?</td>
<td>byte</td>
<td>mode: Calibration mode</td>
</tr>
<tr>
<td></td>
<td></td>
<td></td>
<td></td>
<td>= ALL</td>
</tr>
<tr>
<td>Calibration</td>
<td>CAL mode</td>
<td>---</td>
<td>---</td>
<td>Asynchronous command</td>
</tr>
<tr>
<td>Pre-selector Auto Tune</td>
<td>PRESEL AUTO</td>
<td>---</td>
<td>---</td>
<td></td>
</tr>
<tr>
<td>Pre-selector Bias Reset</td>
<td>PRESEL PRESET</td>
<td>---</td>
<td>---</td>
<td></td>
</tr>
<tr>
<td>Pre-selector Bias</td>
<td>PRESEL bias</td>
<td>PRESEL?</td>
<td>bias</td>
<td>bias = Bias value of pre-selector</td>
</tr>
<tr>
<td></td>
<td></td>
<td></td>
<td></td>
<td>= –128 to 127</td>
</tr>
<tr>
<td>Micro Wave Preselector Bypass</td>
<td>POW:MW:PRES switch</td>
<td>POW:MW:PRES?</td>
<td>status</td>
<td>switch = ON</td>
</tr>
<tr>
<td></td>
<td></td>
<td></td>
<td></td>
<td>status = 1</td>
</tr>
</tbody>
</table>
### 3.3 Frequency/Span Settings

Device messages for setting frequency and span are shown in Table 3.3-1.

<table>
<thead>
<tr>
<th>Function</th>
<th>Command</th>
<th>Query</th>
<th>Response</th>
<th>Remarks</th>
</tr>
</thead>
<tbody>
<tr>
<td>Center Frequency</td>
<td>CNF freq</td>
<td>CNF?</td>
<td>freq</td>
<td></td>
</tr>
<tr>
<td>Start Frequency</td>
<td>STF freq</td>
<td>STF?</td>
<td>freq</td>
<td></td>
</tr>
<tr>
<td>Stop Frequency</td>
<td>SOF freq</td>
<td>SOF?</td>
<td>freq</td>
<td></td>
</tr>
<tr>
<td>Frequency Offset Mode</td>
<td>FOFMD on_off</td>
<td>FOFMD?</td>
<td>on_off</td>
<td></td>
</tr>
<tr>
<td>Frequency Offset Value</td>
<td>FOFFSET freq</td>
<td>FOFFSET?</td>
<td>freq</td>
<td></td>
</tr>
<tr>
<td>Span Frequency</td>
<td>SPF freq</td>
<td>SPF?</td>
<td>freq</td>
<td></td>
</tr>
<tr>
<td>Full Span</td>
<td>FULLSPAN</td>
<td>---</td>
<td>---</td>
<td></td>
</tr>
<tr>
<td></td>
<td>FS</td>
<td>---</td>
<td>---</td>
<td></td>
</tr>
<tr>
<td>Zero Span</td>
<td>ZEROSPAN</td>
<td>---</td>
<td>---</td>
<td></td>
</tr>
<tr>
<td>Frequency Band Mode</td>
<td>BNDSP mode</td>
<td>BNDSP?</td>
<td>mode</td>
<td>mode: Frequency = NORMAL</td>
</tr>
<tr>
<td>Band Select</td>
<td>BNDC mode</td>
<td>BNDC?</td>
<td>mode</td>
<td>mode: Frequency band = AUTO</td>
</tr>
<tr>
<td>Couple Time/Frequency Domain</td>
<td>FREQ:DOM:COUP switch_com</td>
<td>FREQ:DOM:COUP?</td>
<td>switch_res</td>
<td>switch_com : = ON</td>
</tr>
<tr>
<td>Switching Speed</td>
<td>FREQ:SYNT mode</td>
<td>FREQ:SYNT?</td>
<td>mode</td>
<td>mode: Frequency switching speed = BPH</td>
</tr>
</tbody>
</table>
### 3.4 Level Settings

Device messages for setting the level are shown in Table 3.4-1.

<table>
<thead>
<tr>
<th>Function</th>
<th>Command</th>
<th>Query</th>
<th>Response</th>
<th>Remarks</th>
</tr>
</thead>
<tbody>
<tr>
<td>Reference Level</td>
<td>RLV Level</td>
<td>RLV?</td>
<td>Level</td>
<td></td>
</tr>
<tr>
<td>Reference Level</td>
<td>RL level</td>
<td>RL?</td>
<td>level</td>
<td></td>
</tr>
<tr>
<td>Attenuator</td>
<td>AT att</td>
<td>AT?</td>
<td>att</td>
<td>att: Attenuator value</td>
</tr>
<tr>
<td></td>
<td>AT AUTO</td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td>Set RF Attenuator steps</td>
<td>RFAT att</td>
<td>RFAT?</td>
<td>att</td>
<td>att : 0</td>
</tr>
<tr>
<td>Attenuator Step Up/Down</td>
<td>AT action</td>
<td>---</td>
<td>---</td>
<td>action: Operation = UP</td>
</tr>
<tr>
<td>Reference Level Offset Mode</td>
<td>ROFFSET on_off</td>
<td>ROFFSET?</td>
<td>OFF</td>
<td>* When set to ON, response is level.</td>
</tr>
<tr>
<td></td>
<td>ROFFSETMD on_off</td>
<td>ROFFSETMD?</td>
<td>on_off</td>
<td></td>
</tr>
<tr>
<td>Reference Level Offset Value</td>
<td>ROFFSET level</td>
<td>ROFFSET?</td>
<td>Level</td>
<td></td>
</tr>
<tr>
<td>Pre Amp</td>
<td>PREAMP on,off</td>
<td>PREAMP?</td>
<td>on,off</td>
<td>mode: Scale mode = LOG</td>
</tr>
<tr>
<td>Scale Mode</td>
<td>SCALEMODE mode</td>
<td>SCALEMODE?</td>
<td>Mode</td>
<td></td>
</tr>
<tr>
<td>Log Scale Unit</td>
<td>AUNITS unit</td>
<td>AUNITS?</td>
<td>unit</td>
<td>unit: Units = DBM</td>
</tr>
<tr>
<td>Log Scale Range</td>
<td>LOGSCALEDIV scale</td>
<td>LOGSCALEDIV?</td>
<td>scale</td>
<td>scale: dB/div = 0.1</td>
</tr>
<tr>
<td>Linear Scale Range</td>
<td>LINSCALEDIV scale</td>
<td>LINSCALEDIV?</td>
<td>scale</td>
<td>scale: %/div = 1</td>
</tr>
<tr>
<td>Log Scale Line</td>
<td>SCALELINES line</td>
<td>SCALELINES?</td>
<td>line</td>
<td>line: Number of scale lines = 10</td>
</tr>
</tbody>
</table>
3.5 RBW/VBW Settings

Device messages for setting RBW/VBW are shown in Table 3.5-1.

<table>
<thead>
<tr>
<th>Function</th>
<th>Command</th>
<th>Query</th>
<th>Response</th>
<th>Remarks</th>
</tr>
</thead>
<tbody>
<tr>
<td>Resolution Bandwidth (RBW)</td>
<td>RB bandwidth</td>
<td>RB?</td>
<td>bandwidth</td>
<td>bandwidth: Resolution bandwidth</td>
</tr>
<tr>
<td></td>
<td>RB AUTO</td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td>Resolution Bandwidth (RBW MODE)</td>
<td>BAND:MODE mode</td>
<td>BAND:MODE?</td>
<td>mode</td>
<td>mode: Normal/CISPR = NORM</td>
</tr>
<tr>
<td>Video Bandwidth (VBW)</td>
<td>VB bandwidth</td>
<td>VB?</td>
<td>bandwidth</td>
<td>bandwidth: Video bandwidth</td>
</tr>
<tr>
<td></td>
<td>VB AUTO</td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td>Video Bandwidth (VBW) Mode</td>
<td>VBWMODE mode</td>
<td>VBWMODE?</td>
<td>mode</td>
<td>mode: Mode = VIDEO</td>
</tr>
</tbody>
</table>
3.6 Marker Settings

Device messages for setting the marker are shown in Table 3.6-1.

Table 3.6-1  Marker setting messages

<table>
<thead>
<tr>
<th>Function</th>
<th>Command</th>
<th>Query</th>
<th>Response</th>
<th>Remarks</th>
</tr>
</thead>
<tbody>
<tr>
<td>Marker Mode</td>
<td>MKR mode_com,marker</td>
<td>MKR? marker</td>
<td>mode_res</td>
<td>mode_com: Marker mode marker: Marker type</td>
</tr>
<tr>
<td>Zone Marker Position</td>
<td>MKZ point,marker</td>
<td>MKZ? marker</td>
<td>point</td>
<td>point: Number of displayed points from left edge marker: Marker type</td>
</tr>
<tr>
<td>Zone Marker Frequency (Time)</td>
<td>MKZF freq,marker</td>
<td>MKZF? marker</td>
<td>freq</td>
<td>marker: Marker type</td>
</tr>
<tr>
<td>Zone Marker Frequency (Time)</td>
<td>MKN freq,marker</td>
<td>MKN? marker</td>
<td>freq</td>
<td>marker: Marker type</td>
</tr>
<tr>
<td></td>
<td>MKN time,marker</td>
<td>MKN? marker</td>
<td>time</td>
<td></td>
</tr>
<tr>
<td>Zone Marker Width</td>
<td>MKW width,marker</td>
<td>MKW? marker</td>
<td>width</td>
<td>width: Specifies width = 0</td>
</tr>
<tr>
<td>Zone Marker Width (by Point)</td>
<td>MZW point,marker</td>
<td>MZW? marker</td>
<td>point</td>
<td>point: Number of displayed points marker: Marker type</td>
</tr>
<tr>
<td>Zone Marker Width (by Frequency)</td>
<td>MZWF freq,marker</td>
<td>MZWF? marker</td>
<td>freq</td>
<td>freq: Frequency width marker: Marker type</td>
</tr>
<tr>
<td>Marker Trace</td>
<td>MKTRACE trace,marker</td>
<td>MKTRACE? marker_query</td>
<td>trace</td>
<td>trace: Trace type marker: Marker type marker_query: Marker type</td>
</tr>
<tr>
<td>Function</td>
<td>Command</td>
<td>Query</td>
<td>Response</td>
<td>Remarks</td>
</tr>
<tr>
<td>----------------------------------</td>
<td>--------------------------</td>
<td>--------------</td>
<td>---------------------------</td>
<td>-------------------------------------------------------------------------</td>
</tr>
<tr>
<td>Power Marker</td>
<td>POWERMARKER on_off_com</td>
<td>POWERMARKER?</td>
<td>on_off_res</td>
<td></td>
</tr>
<tr>
<td>Marker to Center Frequency</td>
<td>MKCF</td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td>Marker to Reference Level</td>
<td>MKRL</td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td>Marker Position Query</td>
<td>---</td>
<td>CMK? marker</td>
<td>point</td>
<td>point: Number of displayed points from the left edge</td>
</tr>
<tr>
<td></td>
<td></td>
<td></td>
<td></td>
<td>marker: Marker type</td>
</tr>
<tr>
<td>Marker Frequency (Time) Query</td>
<td>---</td>
<td>MKF? marker</td>
<td>freq time</td>
<td>marker: Marker type</td>
</tr>
<tr>
<td>Marker Level Query</td>
<td>---</td>
<td>MKL? marker</td>
<td>level</td>
<td>marker: Marker type</td>
</tr>
<tr>
<td>Marker Relative Level Query</td>
<td>---</td>
<td>CALC:MARK:Y:DELT? marker</td>
<td>level</td>
<td>marker: Marker type</td>
</tr>
<tr>
<td>Reference Marker Position Query</td>
<td>---</td>
<td>RMK?</td>
<td>point</td>
<td>point: Number of displayed points from the left edge</td>
</tr>
<tr>
<td>Reference Marker Frequency (Time) Query</td>
<td>---</td>
<td>RMKF?</td>
<td>freq time</td>
<td></td>
</tr>
<tr>
<td>Reference Marker Level Query</td>
<td>---</td>
<td>RMKL?</td>
<td>level</td>
<td></td>
</tr>
<tr>
<td>Power Marker Result Query</td>
<td>---</td>
<td>RESPOWER? MKR</td>
<td>pow1,den1</td>
<td>pow1: Total zone power</td>
</tr>
<tr>
<td></td>
<td></td>
<td></td>
<td></td>
<td>den1: Zone power density</td>
</tr>
<tr>
<td></td>
<td></td>
<td></td>
<td></td>
<td>pow2: Total reference zone power</td>
</tr>
<tr>
<td></td>
<td></td>
<td></td>
<td></td>
<td>den2: Reference zone power density</td>
</tr>
<tr>
<td></td>
<td></td>
<td></td>
<td></td>
<td>pow_rel: Total power ratio between zones</td>
</tr>
<tr>
<td></td>
<td></td>
<td></td>
<td></td>
<td>den_rel: Power density ratio between zones</td>
</tr>
<tr>
<td>Reference Power Marker Result Query</td>
<td>---</td>
<td>RESPOWER? REFMKR</td>
<td>pow2,den2</td>
<td></td>
</tr>
<tr>
<td>Power Marker Delta Result Query</td>
<td>---</td>
<td>RESPOWER? DELTA</td>
<td>pow_rel,den_rel</td>
<td></td>
</tr>
<tr>
<td>Power Marker All Result Query</td>
<td>---</td>
<td>RESPOWER? ALL</td>
<td>pow1,den1,pow2,den2,pow_rel,den_rel</td>
<td></td>
</tr>
</tbody>
</table>
### Table 3.6-1  Marker setting messages (Cont’d)

<table>
<thead>
<tr>
<th>Function</th>
<th>Command</th>
<th>Query</th>
<th>Response</th>
<th>Remarks</th>
</tr>
</thead>
<tbody>
<tr>
<td><strong>Active Marker</strong></td>
<td>MKACT marker</td>
<td>MKACT?</td>
<td>marker</td>
<td></td>
</tr>
<tr>
<td><strong>Relative To</strong></td>
<td>CALC:MARK:REF marker,integer</td>
<td>CALC:MARK:REF? marker</td>
<td>integer</td>
<td></td>
</tr>
<tr>
<td><strong>Marker Result</strong></td>
<td>MKLTYPE type_com</td>
<td>MKLTYPE?</td>
<td>type_res</td>
<td></td>
</tr>
<tr>
<td><strong>Zone Width Type</strong></td>
<td>CALC:MARK:WIDT:TYP E n,type</td>
<td>CALC:MARK:WIDT:TYP E? n</td>
<td>Type</td>
<td>n = Marker number</td>
</tr>
<tr>
<td><strong>Frequency Counter Gate Time</strong></td>
<td>CALC:MARK:FCO:GAT n, time</td>
<td>CALC:MARK:FCO:GAT? n</td>
<td>time</td>
<td>n = Marker number</td>
</tr>
<tr>
<td><strong>Frequency Counter State</strong></td>
<td>CALC:MARK:FCO n, switch</td>
<td>CALC:MARK:FCO? n</td>
<td>switch</td>
<td>n = Marker number</td>
</tr>
<tr>
<td><strong>Frequency Counter Query</strong></td>
<td>---</td>
<td>CALC:MARK:FCO:X? n</td>
<td>freq</td>
<td>n = Marker number</td>
</tr>
<tr>
<td><strong>Marker Tracking</strong></td>
<td>CALC:MARK:TRCK switch</td>
<td>CALC:MARK:TRCK? switch</td>
<td>switch</td>
<td></td>
</tr>
</tbody>
</table>

Note: `switch_com` and `switch_res` can be set to `ON|OFF|1|0`.
### 3.7 Signal Search Settings

Device messages for setting signal search are shown in Table 3.7-1.

<table>
<thead>
<tr>
<th>Function</th>
<th>Command</th>
<th>Query</th>
<th>Response</th>
<th>Remarks</th>
</tr>
</thead>
<tbody>
<tr>
<td>Peak Search</td>
<td>MKPK</td>
<td>---</td>
<td>---</td>
<td></td>
</tr>
<tr>
<td></td>
<td>MKPK_HI</td>
<td>---</td>
<td>---</td>
<td></td>
</tr>
<tr>
<td>Next Peak</td>
<td>MKPK_NH</td>
<td>---</td>
<td>---</td>
<td></td>
</tr>
<tr>
<td>Peak Search Resolution</td>
<td>MKPX level</td>
<td>MKPX?</td>
<td>level</td>
<td></td>
</tr>
<tr>
<td>Peak Search Mode</td>
<td>SRCHTH mode</td>
<td>SRCHTH?</td>
<td>mode</td>
<td>mode: Detection mode</td>
</tr>
<tr>
<td></td>
<td></td>
<td></td>
<td></td>
<td>= OFF</td>
</tr>
<tr>
<td>Peak Search Threshold Level</td>
<td>SRCHTHLVL level</td>
<td>SRCHTHLVL?</td>
<td>level</td>
<td></td>
</tr>
<tr>
<td>Peak to Center Frequency</td>
<td>PCF</td>
<td>---</td>
<td>---</td>
<td></td>
</tr>
<tr>
<td>Peak to Reference Level</td>
<td>PRL</td>
<td>---</td>
<td>---</td>
<td></td>
</tr>
<tr>
<td>All Peak Search and Query</td>
<td>---</td>
<td>ALLMKPK?</td>
<td>freq1,lev1l,freq2 ,level2,...</td>
<td>freq: Peak point frequency</td>
</tr>
<tr>
<td></td>
<td></td>
<td></td>
<td></td>
<td>(time) data</td>
</tr>
<tr>
<td></td>
<td></td>
<td></td>
<td></td>
<td>level: Peak point level data</td>
</tr>
<tr>
<td>Search Peaks Sort Y</td>
<td>CALC:MARK:PEAK:SOR T:Y</td>
<td>---</td>
<td>---</td>
<td></td>
</tr>
<tr>
<td>Search Peaks Sort X</td>
<td>CALC:MARK:PEAK:SOR T:X</td>
<td>---</td>
<td>---</td>
<td></td>
</tr>
<tr>
<td>Function</td>
<td>Command</td>
<td>Query</td>
<td>Response</td>
<td>Remarks</td>
</tr>
<tr>
<td>------------------------</td>
<td>----------</td>
<td>-----------</td>
<td>--------------------------------------------------------------------------</td>
<td>--------------------------</td>
</tr>
<tr>
<td>Marker Readout Query</td>
<td>---</td>
<td>CALC:MARK:READ?</td>
<td>freq_1,power_1,...,freq_10,power_10</td>
<td>(Frequency Domain)</td>
</tr>
<tr>
<td></td>
<td></td>
<td></td>
<td>time_1,power_1,...,time_10,power_10</td>
<td>(Time Domain)</td>
</tr>
</tbody>
</table>
3.8 Trace Settings

Table 3.8-1 lists device messages for setting trace.

### Table 3.8-1 Trace setting messages

<table>
<thead>
<tr>
<th>Function</th>
<th>Command</th>
<th>Query</th>
<th>Response</th>
<th>Remarks</th>
</tr>
</thead>
<tbody>
<tr>
<td>Active Trace</td>
<td>MKTRACE trace</td>
<td>MKTRACE?</td>
<td>trace</td>
<td>trace: Trace</td>
</tr>
<tr>
<td></td>
<td>ACTIVETRACE trace</td>
<td>ACTIVETRACE?</td>
<td>trace</td>
<td>= TRA</td>
</tr>
<tr>
<td>Trace Write Mode</td>
<td>WRITEMODE mode</td>
<td>WRITEMODE?</td>
<td>mode</td>
<td>mode: Write mode</td>
</tr>
<tr>
<td>Storage Mode (Active Trace)</td>
<td>STORAGEMODE mode</td>
<td>STORAGEMODE?</td>
<td>mode</td>
<td>mode: Storage mode</td>
</tr>
<tr>
<td></td>
<td>AMD mode</td>
<td>AMD?</td>
<td>mode</td>
<td>mode: Storage mode</td>
</tr>
<tr>
<td>Storage Mode (Trace B)</td>
<td>BMD mode</td>
<td>BMD?</td>
<td>mode</td>
<td>mode: Storage mode</td>
</tr>
<tr>
<td>Storage Mode (Trace C)</td>
<td>CMD mode</td>
<td>CMD?</td>
<td>mode</td>
<td>mode: Storage mode</td>
</tr>
<tr>
<td>Storage Mode (Trace D)</td>
<td>DMD mode</td>
<td>DMD?</td>
<td>mode</td>
<td>mode: Storage mode</td>
</tr>
<tr>
<td>Storage Mode (Trace E)</td>
<td>EMD mode</td>
<td>EMD?</td>
<td>mode</td>
<td>mode: Storage mode</td>
</tr>
<tr>
<td>Storage Mode (Trace F)</td>
<td>FMD mode</td>
<td>FMD?</td>
<td>mode</td>
<td>mode: Storage mode</td>
</tr>
<tr>
<td>Storage Count</td>
<td>STORAGECOUNT count</td>
<td>STORAGECOUNT?</td>
<td>count</td>
<td>count: Count</td>
</tr>
<tr>
<td></td>
<td>VAVG count</td>
<td>VAVG?</td>
<td>count</td>
<td>count: Count</td>
</tr>
<tr>
<td></td>
<td>HOLDPAUSE count</td>
<td>HOLDPAUSE?</td>
<td>count</td>
<td>count: Count</td>
</tr>
<tr>
<td>Sweep Count</td>
<td>---</td>
<td>SWEEPCOUNT?</td>
<td>count</td>
<td>count: Sweep count</td>
</tr>
</tbody>
</table>
Table 3.8-1  Trace setting messages (Cont’d)

<table>
<thead>
<tr>
<th>Function</th>
<th>Command</th>
<th>Query</th>
<th>Response</th>
<th>Remarks</th>
</tr>
</thead>
<tbody>
<tr>
<td>Write and Query Trace Data</td>
<td>XMA wpoint,data</td>
<td>XMA?</td>
<td>start,number</td>
<td>wpoint: Data writing position start: Readout starting position number: Data count to be read data: Level data * When the detection mode is Normal, only Positive detection data is targeted.</td>
</tr>
<tr>
<td>(Trace A)</td>
<td></td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td>Write and Query Trace Data</td>
<td>XMB wpoint,data</td>
<td>XMB?</td>
<td>start,number</td>
<td></td>
</tr>
<tr>
<td>(Trace B)</td>
<td></td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td>Write and Query Trace Data</td>
<td>XMC wpoint,data</td>
<td>XMC?</td>
<td>start,number</td>
<td></td>
</tr>
<tr>
<td>(Trace C)</td>
<td></td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td>Write and Query Trace Data</td>
<td>XMD wpoint,data</td>
<td>XMD?</td>
<td>start,number</td>
<td></td>
</tr>
<tr>
<td>(Trace D)</td>
<td></td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td>Write and Query Trace Data</td>
<td>XME wpoint,data</td>
<td>XME?</td>
<td>start,number</td>
<td></td>
</tr>
<tr>
<td>(Trace E)</td>
<td></td>
<td></td>
<td></td>
<td></td>
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<tr>
<td>Write and Query Trace Data</td>
<td>XMF wpoint,data</td>
<td>XMF?</td>
<td>start,number</td>
<td></td>
</tr>
<tr>
<td>(Trace F)</td>
<td></td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td>Write and Query Trace Data</td>
<td>XMZ wpoint,data</td>
<td>XMZ?</td>
<td>start,number</td>
<td></td>
</tr>
<tr>
<td>(Gate View)</td>
<td></td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td>Write and Query Trace Data</td>
<td>SMA wpoint,data</td>
<td>SMA?</td>
<td>start,number</td>
<td></td>
</tr>
<tr>
<td>(Trace A)</td>
<td></td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td>Write and Query Trace Data</td>
<td>SMB wpoint,data</td>
<td>SMB?</td>
<td>start,number</td>
<td></td>
</tr>
<tr>
<td>(Trace B)</td>
<td></td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td>Write and Query Trace Data</td>
<td>SMC wpoint,data</td>
<td>SMC?</td>
<td>start,number</td>
<td></td>
</tr>
<tr>
<td>(Trace C)</td>
<td></td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td>Write and Query Trace Data</td>
<td>SMD wpoint,data</td>
<td>SMD?</td>
<td>start,number</td>
<td></td>
</tr>
<tr>
<td>(Trace D)</td>
<td></td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td>Write and Query Trace Data</td>
<td>SME wpoint,data</td>
<td>SME?</td>
<td>start,number</td>
<td></td>
</tr>
<tr>
<td>(Trace E)</td>
<td></td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td>Write and Query Trace Data</td>
<td>SMF wpoint,data</td>
<td>SMF?</td>
<td>start,number</td>
<td></td>
</tr>
<tr>
<td>(Trace F)</td>
<td></td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td>Write and Query Trace Data</td>
<td>SMZ wpoint,data</td>
<td>SMZ?</td>
<td>start,number</td>
<td></td>
</tr>
<tr>
<td>(Gate View)</td>
<td></td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td>Function</td>
<td>Command</td>
<td>Query</td>
<td>Response</td>
<td>Remarks</td>
</tr>
<tr>
<td>-----------------------------------------------</td>
<td>-------------------------------</td>
<td>----------------------</td>
<td>---------------------</td>
<td>-------------------------------------------------------------------------</td>
</tr>
<tr>
<td>Query Trace Data Spectrum Emission Mask</td>
<td>TRAC:SEM? trace</td>
<td>data1, data2, ...</td>
<td></td>
<td>trace: Target trace = REF</td>
</tr>
<tr>
<td>Query Negative Trace Data Spectrum Emission Mask</td>
<td>TRAC:SEM:NEG? trace</td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td>Save Wave Data</td>
<td>SVCSVWAVE file, device</td>
<td>---</td>
<td>---</td>
<td>file: File name device: Drive name</td>
</tr>
<tr>
<td></td>
<td>SVCSVWAVE</td>
<td>---</td>
<td>---</td>
<td></td>
</tr>
<tr>
<td>Binary Data Byte Order</td>
<td>FORM:BORD border</td>
<td>FORM:BORD?</td>
<td>border</td>
<td>border: Byte order = NORM</td>
</tr>
<tr>
<td>Numeric Data Format</td>
<td>FORM format length</td>
<td>FORM?</td>
<td>format length</td>
<td>format: Data format = ASC</td>
</tr>
<tr>
<td></td>
<td></td>
<td></td>
<td></td>
<td>length: Supplementary setting = 0</td>
</tr>
</tbody>
</table>
### 3.9 Sweep/Trigger/Gate Settings

Device messages for setting sweep/trigger/gate are shown in Table 3.9-1.

**Table 3.9-1  Sweep/trigger/gate setting messages**

<table>
<thead>
<tr>
<th>Function</th>
<th>Command</th>
<th>Query</th>
<th>Response</th>
<th>Remarks</th>
</tr>
</thead>
<tbody>
<tr>
<td>Single Sweep</td>
<td>SNGLS</td>
<td>---</td>
<td>---</td>
<td>(Asynchronous sweep)</td>
</tr>
<tr>
<td></td>
<td>SWP</td>
<td>SWP?</td>
<td>status</td>
<td>status: Sweep status</td>
</tr>
<tr>
<td></td>
<td>TS</td>
<td>---</td>
<td>---</td>
<td></td>
</tr>
<tr>
<td>Continuous Sweep</td>
<td>CONTS</td>
<td>---</td>
<td>---</td>
<td>(Asynchronous sweep)</td>
</tr>
<tr>
<td>Average Sweep</td>
<td>TSAVG</td>
<td>---</td>
<td>---</td>
<td></td>
</tr>
<tr>
<td>Average Sweep (Linear Average)</td>
<td>TSLINAVG</td>
<td>---</td>
<td>---</td>
<td></td>
</tr>
<tr>
<td>Max Hold Sweep</td>
<td>TSMAXHOLD</td>
<td>---</td>
<td>---</td>
<td></td>
</tr>
<tr>
<td>Min Hold Sweep</td>
<td>TSMINHOLD</td>
<td>---</td>
<td>---</td>
<td></td>
</tr>
<tr>
<td>Sweep Restart</td>
<td>SWSTART</td>
<td>---</td>
<td>---</td>
<td></td>
</tr>
<tr>
<td>Sweep Stop</td>
<td>SWSTOP</td>
<td>---</td>
<td>---</td>
<td></td>
</tr>
<tr>
<td>Sweep Time</td>
<td>ST time</td>
<td>ST?</td>
<td>time</td>
<td>time: Time</td>
</tr>
<tr>
<td></td>
<td>ST AUTO</td>
<td>---</td>
<td>---</td>
<td></td>
</tr>
<tr>
<td>Auto Sweep Time Mode</td>
<td>STMODE mode</td>
<td>STMODE?</td>
<td>mode</td>
<td>mode: NORMAL</td>
</tr>
<tr>
<td>Sweep Type Select Rules Real FFT Width Query</td>
<td>---</td>
<td>SWE:RUL:FFT:RWD? freq</td>
<td></td>
<td></td>
</tr>
<tr>
<td>Sweep Type Select Rules Real Type Query</td>
<td>---</td>
<td>SWE:RUL:RTYP? type</td>
<td>type: Sweep mode = SWE</td>
<td>FFT</td>
</tr>
</tbody>
</table>
Table 3.9-1  Sweep/trigger/gate setting messages (Cont’d)

<table>
<thead>
<tr>
<th>Function</th>
<th>Command</th>
<th>Query</th>
<th>Response</th>
<th>Remarks</th>
</tr>
</thead>
<tbody>
<tr>
<td>Trace Point</td>
<td>DPOINT point</td>
<td>DPOINT?</td>
<td>point</td>
<td>point: Number of points displayed</td>
</tr>
<tr>
<td></td>
<td></td>
<td></td>
<td></td>
<td>=11</td>
</tr>
<tr>
<td></td>
<td></td>
<td></td>
<td></td>
<td>=201</td>
</tr>
<tr>
<td></td>
<td></td>
<td></td>
<td></td>
<td>=1001</td>
</tr>
<tr>
<td></td>
<td></td>
<td></td>
<td></td>
<td>=10001</td>
</tr>
<tr>
<td>Detection Mode</td>
<td>DET mode</td>
<td>DET?</td>
<td>mode</td>
<td>mode: Detection mode</td>
</tr>
<tr>
<td></td>
<td></td>
<td></td>
<td></td>
<td>= NRM</td>
</tr>
<tr>
<td></td>
<td></td>
<td></td>
<td></td>
<td>= RMS</td>
</tr>
<tr>
<td>Function</td>
<td>Command</td>
<td>Query</td>
<td>Response</td>
<td>Remarks</td>
</tr>
<tr>
<td>----------------------------------</td>
<td>-----------------------</td>
<td>----------</td>
<td>----------</td>
<td>------------------------------</td>
</tr>
<tr>
<td>Trigger Switch</td>
<td>TRGS switch</td>
<td>TRGS?</td>
<td>switch</td>
<td><strong>switch:</strong> FREE</td>
</tr>
<tr>
<td>Trigger Source</td>
<td>TRGSOURCE source</td>
<td>TRGSOURCE?</td>
<td>source</td>
<td><strong>source:</strong> VID</td>
</tr>
<tr>
<td>Trigger Level (Video/Wide IF Video)</td>
<td>TRGLVL level</td>
<td>TRGLVL?</td>
<td>level</td>
<td></td>
</tr>
<tr>
<td>Trigger Slope</td>
<td>TRGSLP edge</td>
<td>TRGSLP?</td>
<td>edge</td>
<td><strong>edge:</strong> RISE</td>
</tr>
<tr>
<td>Trigger Delay</td>
<td>TDLY time</td>
<td>TDLY?</td>
<td>time</td>
<td></td>
</tr>
<tr>
<td>Gate Sweep</td>
<td>GATE on_off</td>
<td>GATE?</td>
<td>on_off</td>
<td></td>
</tr>
<tr>
<td>Gate Source</td>
<td>GATESOURCE source</td>
<td>GATESOURCE?</td>
<td>source</td>
<td><strong>source:</strong> WIDEVID</td>
</tr>
<tr>
<td>Gate Level</td>
<td>GATELVL level</td>
<td>GATELVL?</td>
<td>level</td>
<td><strong>level:</strong> Gate signal detection level</td>
</tr>
<tr>
<td>Gate Slope</td>
<td>GATESLOP edge</td>
<td>GATESLOP?</td>
<td>edge</td>
<td><strong>edge:</strong> RISE</td>
</tr>
<tr>
<td>Gate Delay</td>
<td>GDL time</td>
<td>GDL?</td>
<td>time</td>
<td></td>
</tr>
<tr>
<td>Gate Length</td>
<td>GLN time</td>
<td>GLN?</td>
<td>time</td>
<td></td>
</tr>
<tr>
<td>Function</td>
<td>Command</td>
<td>Query</td>
<td>Response</td>
<td>Remarks</td>
</tr>
<tr>
<td>---------------------</td>
<td>--------------------------</td>
<td>---------------</td>
<td>----------</td>
<td>---------------------------</td>
</tr>
<tr>
<td>Gate Slope</td>
<td>GATESLOP edge</td>
<td>GATESLOP?</td>
<td>edge</td>
<td>edge = RISE</td>
</tr>
<tr>
<td>Gate Delay</td>
<td>GDL time</td>
<td>GDL?</td>
<td>time</td>
<td></td>
</tr>
<tr>
<td>Gate Length</td>
<td>GLN time</td>
<td>GLN?</td>
<td>time</td>
<td></td>
</tr>
<tr>
<td>Gate View</td>
<td>SWE:EGAT:VIEW switch_com</td>
<td>SWE:EGAT:VIEW?</td>
<td>switch_res</td>
<td></td>
</tr>
<tr>
<td></td>
<td></td>
<td></td>
<td></td>
<td>switch_com = ON</td>
</tr>
<tr>
<td></td>
<td></td>
<td></td>
<td></td>
<td>switch_res = 1</td>
</tr>
<tr>
<td>Gate View Sweep Time</td>
<td>SWE:EGAT:TIME time</td>
<td>SWE:EGAT:TIME?</td>
<td>time</td>
<td></td>
</tr>
<tr>
<td></td>
<td></td>
<td></td>
<td></td>
<td>switch_com = ON</td>
</tr>
<tr>
<td></td>
<td></td>
<td></td>
<td></td>
<td>switch_res = 1</td>
</tr>
<tr>
<td></td>
<td></td>
<td></td>
<td></td>
<td>switch_com = ON</td>
</tr>
<tr>
<td></td>
<td></td>
<td></td>
<td></td>
<td>switch_res = 1</td>
</tr>
<tr>
<td>Function</td>
<td>Command</td>
<td>Query</td>
<td>Response</td>
<td>Remarks</td>
</tr>
<tr>
<td>---------------------------</td>
<td>---------------------------</td>
<td>---------------</td>
<td>--------------</td>
<td>--------------------------</td>
</tr>
<tr>
<td>Gate View Trace Point</td>
<td>SWE:EGAT:VIEW:POIN</td>
<td>SWE:EGAT:VIEW:POIN?</td>
<td>integer</td>
<td></td>
</tr>
<tr>
<td></td>
<td></td>
<td></td>
<td>switch_res:</td>
<td>= 1</td>
</tr>
<tr>
<td>Gate Hold</td>
<td>SWE:EGAT:HOLD</td>
<td>SWE:EGAT:HOLD?</td>
<td>time</td>
<td></td>
</tr>
<tr>
<td>Gate Hold On/Off</td>
<td>SWE:EGAT:HOLD:STAT</td>
<td>SWE:EGAT:HOLDSTAT?</td>
<td>switch</td>
<td>switch: Gate Hold On/Off</td>
</tr>
<tr>
<td></td>
<td></td>
<td></td>
<td></td>
<td>= ON</td>
</tr>
<tr>
<td>Trigger Hold</td>
<td>TRIG:HOLD</td>
<td>TRIG:HOLD?</td>
<td>time</td>
<td></td>
</tr>
<tr>
<td></td>
<td></td>
<td></td>
<td></td>
<td>= ON</td>
</tr>
<tr>
<td>Frame Trigger Period</td>
<td>TRIG:FRAM:PER</td>
<td>TRIG:FRAM:PER?</td>
<td>time</td>
<td></td>
</tr>
<tr>
<td></td>
<td></td>
<td></td>
<td></td>
<td>= EXT</td>
</tr>
<tr>
<td>Frame Sync Offset</td>
<td>TRIG:FRAM:OFFS</td>
<td>TRIG:FRAM:OFFS?</td>
<td>time</td>
<td></td>
</tr>
</tbody>
</table>
### 3.10 Measure Function Settings

#### 3.10.1 Common Measure function settings

Device messages common for Measure functions are shown in Table 3.10.1-1.

<table>
<thead>
<tr>
<th>Function</th>
<th>Command</th>
<th>Query</th>
<th>Response</th>
<th>Remarks</th>
</tr>
</thead>
<tbody>
<tr>
<td>Select Standard</td>
<td>SELECTSTD standard</td>
<td>SELECTSTD?</td>
<td>standard</td>
<td>standard: Communication standard</td>
</tr>
<tr>
<td>Load Standard Parameter</td>
<td>LOADSTD function,pattern</td>
<td>LOADSTD? function</td>
<td>pattern</td>
<td>function: Measurement function pattern: Parameter type</td>
</tr>
<tr>
<td>Measurement Off</td>
<td>CONF:SAN</td>
<td>---</td>
<td>---</td>
<td></td>
</tr>
</tbody>
</table>
### 3.10.2 Adjacent channel power measurement function settings

Device messages for adjacent channel power measurement settings are shown in Table 3.10.2-1.

<table>
<thead>
<tr>
<th>Function</th>
<th>Command</th>
<th>Query</th>
<th>Response</th>
<th>Remarks</th>
</tr>
</thead>
</table>
| Measure Adjacent Channel Power | MEAS ADJ  | MEAS?   | ADJ      | mode: Measurement mode
                  | MEAS ADJ,EXE |         |          | = MOD | TOTAL | INBAND | BOTHSIDE |
                  | MEAS ADJ,mode |         |          | num: Reference carrier number |
                  | MEAS ADJ,num |         |          |                                                  |
| Measure Adjacent Channel Power | MEAS OFF | MEAS?   | OFF      |                                               |
| ACP Reference                | MADJMOD mode | MADJMOD? | mode     | mode: Measurement mode
<pre><code>              |               |          |          | = MOD | TOTAL | INBAND | BOTHSIDE |
              | MADJMOD num |                | num      | num: Reference carrier number |
</code></pre>
<p>| Noise Cancel                 | NOISECANCELE on_off | NOISECANCELE? | on_off   | on_off:                                      |
|               |          |          | = ON | OFF |
| ACP Channel Bandwidth        | ADJCHBW freq | ADJCHBW? | freq     |                                               |
| ACP Carrier BW              | ADJINBW freq | ADJINBW? | freq     |                                               |
| ACP In Band Center           | ADJCARRIERCNT freq | ADJCARRIERCNT? | freq |                                               |
| ACP Carrier Number           | ADJ CARRIERNUM num | ADJ CARRIERNUM? | num | num: Carrier number |
| ACP Carrier Spacing          | ADJCARRIERSPACE freq | ADJCARRIERSPACE? | freq | freq: Carrier spacing |
| ACP Offset-1                 | ADJOFFSET1 on_off | ADJOFFSET1? | on_off   |                                               |
| ACP Offset-2                 | ADJOFFSET2 on_off | ADJOFFSET2? | on_off   |                                               |
| ACP Offset-3                 | ADJOFFSET3 on_off | ADJOFFSET3? | on_off   |                                               |</p>
<table>
<thead>
<tr>
<th>Function</th>
<th>Command</th>
<th>Query</th>
<th>Response</th>
<th>Remarks</th>
</tr>
</thead>
<tbody>
<tr>
<td>ACP Offset Frequency</td>
<td>ADJCHSP freq</td>
<td>ADJCHSP?</td>
<td>freq</td>
<td>freq: Offset frequency</td>
</tr>
<tr>
<td></td>
<td>ADJCHSP offset, freq</td>
<td>ADJCHSP? freq</td>
<td>freq</td>
<td>offset: Measurement channel</td>
</tr>
<tr>
<td></td>
<td></td>
<td></td>
<td></td>
<td>= 1</td>
</tr>
<tr>
<td>ACP Offset-2 Frequency</td>
<td>ADJCHSPF freq</td>
<td>ADJCHSPF?</td>
<td>freq</td>
<td>freq</td>
</tr>
<tr>
<td>ACP Offset-3 Frequency</td>
<td>ADJCHSPFF freq</td>
<td>ADJCHSPFF?</td>
<td>freq</td>
<td></td>
</tr>
<tr>
<td>ACP Filter Type</td>
<td>ADJFILTYPE filter</td>
<td>ADJFILTYPE? filter,filter</td>
<td>filter,filter</td>
<td>filter: Filter type</td>
</tr>
<tr>
<td></td>
<td>ADJFILTYPE filter,target</td>
<td>ADJFILTYPE? target</td>
<td>filter</td>
<td>target: Target filter</td>
</tr>
<tr>
<td></td>
<td></td>
<td></td>
<td></td>
<td>= INBAND</td>
</tr>
<tr>
<td>ACP Power Result Type</td>
<td>ADJFWRTYPE mode</td>
<td>ADJFWRTYPE? mode</td>
<td>mode</td>
<td>mode: Power result type</td>
</tr>
<tr>
<td></td>
<td></td>
<td></td>
<td></td>
<td>= CARRIER</td>
</tr>
<tr>
<td>ACP Rolloff Ratio</td>
<td>ADJROF ratio</td>
<td>ADJROF?</td>
<td>ratio, ratio</td>
<td>ratio: Filter rolloff ratio</td>
</tr>
<tr>
<td></td>
<td>ADJROF ratio,target</td>
<td>ADJROF? target</td>
<td>ratio</td>
<td>target: Target filter</td>
</tr>
<tr>
<td></td>
<td></td>
<td></td>
<td></td>
<td>= INBAND</td>
</tr>
<tr>
<td>Function</td>
<td>Command</td>
<td>Query</td>
<td>Response</td>
<td>Remarks</td>
</tr>
<tr>
<td>----------</td>
<td>---------</td>
<td>-------</td>
<td>----------</td>
<td>---------</td>
</tr>
<tr>
<td>ACP Measurement Result Query</td>
<td>---</td>
<td>RES?</td>
<td>lc,lr1,la1,ur1,ua1, lr2,la2,ur2,ua2,lr3, la3,ur3,ua3</td>
<td>lc: Reference power absolute value  lr1:Measurement frequency 1 (Bottom side) power relative value  la1:Measurement frequency 1 (Bottom side) power absolute value  ur1:Measurement frequency 1 (Top side) power relative value  ua1:Measurement frequency 1 (Top side) power absolute value  lr2:Measurement frequency 2 (Bottom side) power relative value  la2:Measurement frequency 2 (Bottom side) power absolute value  ur2:Measurement frequency 2 (Top side) power relative value  ua2:Measurement frequency 2 (Top side) power absolute value  lr3:Measurement frequency 3 (Bottom side) power relative value  la3:Measurement frequency 3 (Bottom side) power absolute value  ur3:Measurement frequency 3 (Top side) power relative value  ua3:Measurement frequency 3 (Top side) power absolute value</td>
</tr>
<tr>
<td></td>
<td></td>
<td>RES? OFFSET</td>
<td></td>
<td></td>
</tr>
</tbody>
</table>
### Table 3.10.2-1  Adjacent channel power measurement function setting messages (Cont’d)

<table>
<thead>
<tr>
<th>Function</th>
<th>Command</th>
<th>Query</th>
<th>Response</th>
<th>Remarks</th>
</tr>
</thead>
</table>
| ACP Measurement Result Query (Cont’d) | ---     | RES? CARRIER | l1s,lca,lc1,lc2,lc3,lc4,lc5,lc6,lc7,lc8,lc9,lc10,lc11,lc12 | ls: Total power absolute value over Span  
lca: Total carrier power absolute value  
lc1: Carrier-1 power absolute value  
lc2: Carrier-2 power absolute value  
lc3: Carrier-3 power absolute value  
lc4: Carrier-4 power absolute value  
lc5: Carrier-5 power absolute value  
lc6: Carrier-6 power absolute value  
lc7: Carrier-7 power absolute value  
lc8: Carrier-8 power absolute value  
lc9: Carrier-9 power absolute value  
lc10: Carrier-10 power absolute value  
lc11: Carrier-11 power absolute value  
lc12: Carrier-12 power absolute value |
3.10.3 Burst average power measurement function settings

Device messages for burst average power measurement settings are shown in Table 3.10.3-1.

<table>
<thead>
<tr>
<th>Function</th>
<th>Command</th>
<th>Query</th>
<th>Response</th>
<th>Remarks</th>
</tr>
</thead>
<tbody>
<tr>
<td>Measure Burst Average Power</td>
<td>MEAS_BRSTAVGPWR</td>
<td>MEAS?</td>
<td>ADJ</td>
<td></td>
</tr>
<tr>
<td></td>
<td>MEAS BRSTAVGPWR,EXE</td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td>Disable Burst Average Power</td>
<td>MEAS OFF</td>
<td>MEAS?</td>
<td>OFF</td>
<td></td>
</tr>
<tr>
<td>Noise Cancel</td>
<td>NOISECANCEL on_off</td>
<td>NOISECANCEL?</td>
<td>on_off</td>
<td>on_off: = ON</td>
</tr>
<tr>
<td>Burst Average Power Start Time</td>
<td>BAPWRSTART time</td>
<td>BAPWRSTART?</td>
<td>time</td>
<td></td>
</tr>
<tr>
<td>Burst Average Power Stop Time</td>
<td>BAPWRSTOP time</td>
<td>BAPWRSTOP?</td>
<td>time</td>
<td></td>
</tr>
<tr>
<td>Burst Average Power Measurement Result Query</td>
<td>___</td>
<td>RES?</td>
<td>level</td>
<td></td>
</tr>
</tbody>
</table>
### 3.10.4 Channel power measurement function settings

Device messages for channel power measurement settings are shown in Table 3.10.4-1.

<table>
<thead>
<tr>
<th>Function</th>
<th>Command</th>
<th>Query</th>
<th>Response</th>
<th>Remarks</th>
</tr>
</thead>
<tbody>
<tr>
<td>Measure Channel Power</td>
<td>MEAS CHPWR</td>
<td>MEAS?</td>
<td>CHPWR</td>
<td></td>
</tr>
<tr>
<td></td>
<td>MEAS OFF</td>
<td>MEAS?</td>
<td>OFF</td>
<td></td>
</tr>
<tr>
<td>Channel Power Channel Center Frequency</td>
<td>CHPWRCENTER freq</td>
<td>CHPWRCENTER?</td>
<td>freq</td>
<td></td>
</tr>
<tr>
<td>Channel Power Channel Bandwidth</td>
<td>CHPWRWIDTH freq</td>
<td>CHPWRWIDTH?</td>
<td>freq</td>
<td></td>
</tr>
<tr>
<td>Channel Power Filter Type</td>
<td>CHPWRFLTRTYP filter</td>
<td>CHPWRFLTRTYP?</td>
<td>filter</td>
<td>filter: Filter type = RECT</td>
</tr>
<tr>
<td>Channel Power Rolloff Factor</td>
<td>CHPWRROF ratio</td>
<td>CHPWRROF?</td>
<td>ratio</td>
<td>ratio: Filter rolloff factor</td>
</tr>
<tr>
<td>Channel Power Measurement Result Query</td>
<td>____</td>
<td>RES?</td>
<td>power,density</td>
<td>power: Total power of the channel, density: Mean power spectral density of the channel</td>
</tr>
</tbody>
</table>
3.10.5 Occupied Bandwidth measurement function settings

Device messages for occupied bandwidth measurement settings are shown in Table 3.10.5-1.

<table>
<thead>
<tr>
<th>Function</th>
<th>Command</th>
<th>Query</th>
<th>Response</th>
<th>Remarks</th>
</tr>
</thead>
<tbody>
<tr>
<td>Measure Occupied Bandwidth</td>
<td>MEAS OBW</td>
<td>MEAS?</td>
<td>OBW</td>
<td></td>
</tr>
<tr>
<td></td>
<td>MEAS OFF</td>
<td>MEAS?</td>
<td>OFF</td>
<td></td>
</tr>
<tr>
<td>OBW Measurement Method</td>
<td>MOBW method</td>
<td>MOBW?</td>
<td>method</td>
<td></td>
</tr>
<tr>
<td>OBW N% Ratio</td>
<td>OBWN ratio</td>
<td>OBWN?</td>
<td>ratio</td>
<td></td>
</tr>
<tr>
<td>OBW XdB Value</td>
<td>OBWXDB level</td>
<td>OBWXDB?</td>
<td>level</td>
<td></td>
</tr>
</tbody>
</table>

**Table 3.10.5-1  Occupied bandwidth measurement function setting messages**

**Remarks**
- **obw**: Occupied bandwidth
- **center**: Center frequency of occupied bandwidth
- **start**: Start frequency of occupied bandwidth
- **stop**: Stop frequency of occupied bandwidth
### 3.10.6 Spectrum Emission Mask Measurement function settings

Device messages for spectrum emission mask measurement settings are shown in Table 3.10.6-1.

<table>
<thead>
<tr>
<th>Function</th>
<th>Command</th>
<th>Query</th>
<th>Response</th>
<th>Remarks</th>
</tr>
</thead>
<tbody>
<tr>
<td>Measure Spectrum Emission Mask</td>
<td>SEM switch_com</td>
<td>SEM?</td>
<td>switch_res</td>
<td>switch_com:</td>
</tr>
<tr>
<td></td>
<td>MEAS SEM</td>
<td>MEAS?</td>
<td>SEM</td>
<td>ON</td>
</tr>
<tr>
<td></td>
<td>MEAS OFF</td>
<td></td>
<td>OFF</td>
<td></td>
</tr>
<tr>
<td>Spectrum Emission Mask</td>
<td>SEM:ATT rel_ampl</td>
<td>SEM:ATT?</td>
<td>rel_ampl</td>
<td></td>
</tr>
<tr>
<td>Attenuator</td>
<td>SEM:ATT AUTO</td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td>Spectrum Emission Mask</td>
<td>SEM:BAND</td>
<td>SEM:BAND?</td>
<td>bandwidth</td>
<td></td>
</tr>
<tr>
<td>Resolution Bandwidth</td>
<td></td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td>Resolution Bandwidth Auto/Manual</td>
<td>switch_com</td>
<td></td>
<td></td>
<td>ON</td>
</tr>
<tr>
<td>Integrate Bandwidth</td>
<td></td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td>Video Bandwidth</td>
<td></td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td>Video Bandwidth Auto/Manual</td>
<td>switch_com</td>
<td></td>
<td></td>
<td>VID</td>
</tr>
<tr>
<td>Video Bandwidth Mode</td>
<td>method</td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td>Spectrum Emission Mask</td>
<td>SEM:CARR ampl</td>
<td>SEM:CARR?</td>
<td>ampl</td>
<td></td>
</tr>
<tr>
<td>Reference Power</td>
<td></td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td>Function</td>
<td>Command</td>
<td>Query</td>
<td>Response</td>
<td>Remarks</td>
</tr>
<tr>
<td>----------</td>
<td>---------</td>
<td>-------</td>
<td>----------</td>
<td>---------</td>
</tr>
<tr>
<td>Sweep Type Select Rules</td>
<td></td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td>Real FFT Width Query</td>
<td></td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td>Sweep Type Select Rules</td>
<td></td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td>Real Type Query</td>
<td></td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td>Spectrum Emission Mask</td>
<td>SEM:DET mode</td>
<td>SEM:DET?</td>
<td>mode</td>
<td>mode : Detection mode = NORM</td>
</tr>
<tr>
<td>Detection Mode</td>
<td></td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td>Reference Roll-off Factor</td>
<td></td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td>Reference Filter Type</td>
<td></td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td>Spectrum Emission Mask</td>
<td>SEM:LOG:OFFS:LIST:TES T logic_1[,logic_2[,logic_3[,logic_4[,logic_5[,logic_6[,logic_7[,logic_8[,logic_9[,logic_10[,logic_11[,logic_12]]]]]]]]]]</td>
<td>SEM:LOG:OFFS:LIS T:TEST?</td>
<td>logic_1,logic_2,logic_3,logic_4,logic_5,logic_6,logic_7,logic_8,logic_9,logic_10,logic_11,logic_12</td>
<td></td>
</tr>
<tr>
<td>Fail Logic</td>
<td></td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td>Spectrum Emission Mask</td>
<td>SEM:OFFS:LIST:ATT rel_ampl_1[,rel_ampl_2[,rel_ampl_3[,rel_ampl_4[,rel_ampl_5[,rel_ampl_6[,rel_ampl_7[,rel_ampl_8[,rel_ampl_9[,rel_ampl_10[,rel_ampl_11[,rel_ampl_12]]]]]]]]]]</td>
<td>SEM:OFFS:LIST:AT T?</td>
<td>rel_ampl_1,rel_ampl_2,rel_ampl_3,rel_ampl_4,rel_ampl_5,rel_ampl_6,rel_ampl_7,rel_ampl_8,rel_ampl_9,rel_ampl_10,rel_ampl_11,rel_ampl_12</td>
<td></td>
</tr>
<tr>
<td>Offset Attenuator</td>
<td></td>
<td></td>
<td></td>
<td></td>
</tr>
</tbody>
</table>
### Table 3.10.6-1 Spectrum Emission Mask measurement function setting messages (Cont’d)

<table>
<thead>
<tr>
<th>Function Command</th>
<th>Query</th>
<th>Response</th>
<th>Remarks</th>
</tr>
</thead>
<tbody>
<tr>
<td>SEM:OFFS:LIST:BAND</td>
<td>bandwidth_1, bandwidth_2, bandwidth_3, bandwidth_4, bandwidth_5, bandwidth_6, bandwidth_7, bandwidth_8, bandwidth_9, bandwidth_10, bandwidth_11, bandwidth_12</td>
<td></td>
<td></td>
</tr>
<tr>
<td>SEM:OFFS:LIST:BAND:AU</td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td>switch_1_res, switch_2_res, switch_3_res, switch_4_res, switch_5_res, switch_6_res, switch_7_res, switch_8_res, switch_9_res, switch_10_res, switch_11_res, switch_12_res</td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td>SEM:OFFS:LIST:BA</td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td>switch_1_com, switch_2_com, switch_3_com, switch_4_com, switch_5_com, switch_6_com, switch_7_com, switch_8_com, switch_9_com, switch_10_com, switch_11_com, switch_12_com</td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td>ON</td>
<td>OFF</td>
<td>1</td>
<td>0</td>
</tr>
<tr>
<td>Function</td>
<td>Command</td>
<td>Query</td>
<td>Response</td>
</tr>
<tr>
<td>----------</td>
<td>---------</td>
<td>-------</td>
<td>----------</td>
</tr>
<tr>
<td>Spectrum Emission Mask Offset Integrate Bandwidth</td>
<td>SEM:OFFS:LIST:BAND:INT bandwidth_1[,bandwidth_2[,bandwidth_3[,bandwidth_4[,bandwidth_5[,bandwidth_6[,bandwidth_7[,bandwidth_8[,bandwidth_9[,bandwidth_10[,bandwidth_11[,bandwidth_12]]]]]]]]]]</td>
<td>SEM:OFFS:LIST:BA ND:INT?</td>
<td>bandwidth_1,bandwidth_2,bandwidth_3,bandwidth_4,bandwidth_5,bandwidth_6,bandwidth_7,bandwidth_8,bandwidth_9,bandwidth_10,bandwidth_11,bandwidth_12</td>
</tr>
<tr>
<td>Spectrum Emission Mask Offset Video Bandwidth</td>
<td>SEM:OFFS:LIST:BAND:VID bandwidth_1[,bandwidth_2[,bandwidth_3[,bandwidth_4[,bandwidth_5[,bandwidth_6[,bandwidth_7[,bandwidth_8[,bandwidth_9[,bandwidth_10[,bandwidth_11[,bandwidth_12]]]]]]]]]]</td>
<td>SEM:OFFS:LIST:BA ND:VID?</td>
<td>bandwidth_1,bandwidth_2,bandwidth_3,bandwidth_4,bandwidth_5,bandwidth_6,bandwidth_7,bandwidth_8,bandwidth_9,bandwidth_10,bandwidth_11,bandwidth_12</td>
</tr>
<tr>
<td>Function</td>
<td>Command</td>
<td>Query</td>
<td>Response</td>
</tr>
<tr>
<td>-----------------</td>
<td>---------</td>
<td>-------</td>
<td>----------</td>
</tr>
<tr>
<td>Spectrum Emission Mask Offset Detection Mode</td>
<td>SEM:OFFS:LIST:DET</td>
<td>SEM:OFFS:LIST:DET?</td>
<td>mode_1, mode_2, mode_3, mode_4, mode_5, mode_6, mode_7, mode_8, mode_9, mode_10, mode_11, mode_12</td>
</tr>
<tr>
<td>Function</td>
<td>Command</td>
<td>Query</td>
<td>Response</td>
</tr>
<tr>
<td>----------</td>
<td>---------</td>
<td>-------</td>
<td>----------</td>
</tr>
<tr>
<td>Spectrum Emission Mask Offset Stop Frequency</td>
<td>SEM:OFFS:LIST:FREQ:ST</td>
<td>freq_1[,freq_2[,freq_3[,freq_4[,freq_5[,freq_6[,freq_7[,freq_8[,freq_9[,freq_10[,freq_11[,freq_12]]]]]]]]]]</td>
<td>SEM:OFFS:LIST:FREQ:STOP?</td>
</tr>
<tr>
<td>Spectrum Emission Mask Offset Reference Level</td>
<td>SEM:OFFS:LIST:RLEV</td>
<td>ampl_1[,ampl_2[,ampl_3[,ampl_4[,ampl_5[,ampl_6[,ampl_7[,ampl_8[,ampl_9[,ampl_10[,ampl_11[,ampl_12]]]]]]]]]]</td>
<td>SEM:OFFS:LIST:RLEV?</td>
</tr>
<tr>
<td></td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td>Function</td>
<td>Command</td>
<td>Query</td>
<td>Response</td>
</tr>
<tr>
<td>-----------------------------------------------</td>
<td>-------------------------------------------------------------------------</td>
<td>----------------</td>
<td>--------------------------------------------------------------------------</td>
</tr>
<tr>
<td>Offset Start</td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td>Frequency Absolute Limit</td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td>Level</td>
<td></td>
<td></td>
<td></td>
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<tr>
<td>Offset Start Frequency Limit</td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td>Level</td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td>Offset On/Off</td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td></td>
<td>switch_com: = ON</td>
<td>OFF</td>
<td>1</td>
</tr>
<tr>
<td>Function</td>
<td>Command</td>
<td>Query</td>
<td>Response</td>
</tr>
<tr>
<td>-----------------------------------------------</td>
<td>---------</td>
<td>------------</td>
<td>--------------------------------------------------------------------------</td>
</tr>
<tr>
<td>Spectrum Emission Mask Offset Stop Frequency Absolute Limit Level</td>
<td>SEM:OFFS:LIST:STOP:ABS integer,ampl_1[,ampl_2[,ampl_3[,ampl_4[,ampl_5[,ampl_6[,ampl_7[,ampl_8[,ampl_9[,ampl_10[,ampl_11[,ampl_12]]]]]]]]]]</td>
<td>SEM:OFFS:LIST:STOP:ABS? integer</td>
<td>ampl_1,ampl_2,ampl_3,ampl_4,ampl_5,ampl_6,ampl_7,ampl_8,ampl_9,ampl_10,ampl_11,ampl_12</td>
</tr>
<tr>
<td>Spectrum Emission Mask Offset Stop Frequency Limit Level</td>
<td>SEM:OFFS:LIST:STOP:REC ampl_1[,ampl_2[,ampl_3[,ampl_4[,ampl_5[,ampl_6[,ampl_7[,ampl_8[,ampl_9[,ampl_10[,ampl_11[,ampl_12]]]]]]]]]]</td>
<td>SEM:OFFS:LIST:STOP:REC?</td>
<td>ampl_1,ampl_2,ampl_3,ampl_4,ampl_5,ampl_6,ampl_7,ampl_8,ampl_9,ampl_10,ampl_11,ampl_12</td>
</tr>
<tr>
<td>Spectrum Emission Mask Offset Sweep Time</td>
<td>SEM:OFFS:LIST:SWE:TIME time_1[,time_2[,time_3[,time_4[,time_5[,time_6[,time_7[,time_8[,time_9[,time_10[,time_11[,time_12]]]]]]]]]]</td>
<td>SEM:OFFS:LIST:SWE:TIME?</td>
<td>time_1,time_2,time_3,time_4,time_5,time_6,time_7,time_8,time_9,time_10,time_11,time_12</td>
</tr>
<tr>
<td>Function</td>
<td>Command</td>
<td>Query</td>
<td>Response</td>
</tr>
<tr>
<td>----------</td>
<td>---------</td>
<td>------</td>
<td>----------</td>
</tr>
<tr>
<td>Spectrum Emission Mask Offset Auto Sweep Time Select</td>
<td>SEM:OFFS:LIST:SWE:TIM E:AUTO:MODE mode_1[,mode_2[,mode_ 3[,mode_4[,mode_5[,mode_6[,mode_7[,mode_8[ ,mode_9[,mode_10[,mod e_11[,mode_12]]]]]]]]]]</td>
<td>SEM:OFFS:LIST:SW E:TIME:AUTO:MODE</td>
<td>mode_1,mode_2,mode 3,mode_4,mode_5,mod e_6,mode_7,mode_8,mode_9,mode_10,mode_11,mode_12</td>
</tr>
<tr>
<td>Spectrum Emission Mask Offset Sweep Type Select Rules Real FFT Width Query</td>
<td>---</td>
<td>SEM:OFFS:LIST:SW E:RUL:FFT:RWID?</td>
<td>freq_1,freq_2,freq_3,freq_4,freq_5,freq_6,freq_7,freq_8,freq_9,freq_10,freq_11,freq_12</td>
</tr>
<tr>
<td>Spectrum Emission Mask Offset Sweep Type Select Rules Real Type Query</td>
<td>---</td>
<td>SEM:OFFS:LIST:SW E:RUL:RTYP?</td>
<td>type_1,type_2,type 3,type_4,type_5,type_6,type_7,type_8,type_9,type_10,type_11,type_12</td>
</tr>
<tr>
<td>Function</td>
<td>Command</td>
<td>Query</td>
<td>Response</td>
</tr>
<tr>
<td>-----------------------------------------</td>
<td>--------------------</td>
<td>--------------------</td>
<td>----------</td>
</tr>
<tr>
<td>Limit Side</td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td>Spectrum Emission Mask Trace Point</td>
<td>SEM:SWE:POIN integer</td>
<td>SEM:SWE:POIN?</td>
<td>integer</td>
</tr>
<tr>
<td>Spectrum Emission Mask Reference Type</td>
<td>SEM:TYPE type</td>
<td>SEM:TYPE?</td>
<td>type</td>
</tr>
<tr>
<td>Spectrum Emission Mask Configure</td>
<td>CONF:SEM</td>
<td>---</td>
<td>---</td>
</tr>
<tr>
<td>Spectrum Emission Mask Initiate</td>
<td>INIT:SEM</td>
<td>---</td>
<td>---</td>
</tr>
<tr>
<td>Couple Ref &amp; ATT</td>
<td>SEM:RAC switch_com</td>
<td>SEM:RAC?</td>
<td>switch_res</td>
</tr>
<tr>
<td>Function</td>
<td>Command</td>
<td>Query</td>
<td>Response</td>
</tr>
<tr>
<td>----------------------------------</td>
<td>---------</td>
<td>---------------------</td>
<td>---------------------------------------------------------------------------</td>
</tr>
</tbody>
</table>
| Spectrum Emission Mask Fetch     | ---     | FETC:SEM? n         | total_judge, ref_power, abs_lower_offset_1,margin_lower_offset_1,freq_lower_offset_1,lower_offset_1,abs_upper_offset_1,margin_upper_offset_1,freq_upper_offset_1,upper_offset_1,.....,abs_lower_offset_12,margin_lower_offset_12,freq_lower_offset_12,lower_offset_12,abs_upper_offset_12,margin_upper_offset_12,freq_upper_offset_12,upper_offset_12 | When the result mode is “A”.
|                                  |         |                     | total_judge : Total judgement result
|                                  |         |                     | ref_power : Reference absolute power
| Spectrum Emission Mask Read      | ---     | READ:SEM? n         | abs_lower_offset_m,margin_lower_offset_m,freq_lower_offset_m,lower_offset_m,abs_upper_offset_m,margin_upper_offset_m,freq_upper_offset_m,upper_offset_m,.....,abs_lower_offset_12,margin_lower_offset_12,freq_lower_offset_12,lower_offset_12,abs_upper_offset_12,margin_upper_offset_12,freq_upper_offset_12,upper_offset_12 | Judgment result of lower Offset-m
| Spectrum Emission Mask Measure   | ---     | MEAS:SEM? n         | (n=1 or when omitted)                                                     | Minimum value of margin of lower Offset-m

When the result mode is “A”.

- total_judge : Total judgement result
- ref_power : Reference absolute power
- abs_lower_offset_m : Peak value of absolute power of lower Offset-m
- margin_lower_offset_m : Minimum value of margin of lower Offset-m
- freq_lower_offset_m : Frequency of peak level of lower Offset-m
- lower_offset_m : Judgment result of lower Offset-m
- abs_upper_offset_m : Peak value of absolute power of upper Offset-m
- margin_upper_offset_m : Minimum value of margin of upper Offset-m
- freq_upper_offset_m : Frequency of peak level of upper Offset-m
### Table 3.10.6-1 Spectrum Emission Mask measurement function setting messages (Cont’d)

<table>
<thead>
<tr>
<th>Function</th>
<th>Command</th>
<th>Query</th>
<th>Response</th>
<th>Remarks</th>
</tr>
</thead>
<tbody>
<tr>
<td>Spectrum Emission Mask</td>
<td>---</td>
<td>FETC:SEM? n</td>
<td>-999.0, ref_power, -999.0, -999.0, 0, -999.0, -999.0, -999.0, 999.0, -999.0, -999.0, rel_lower_offset_1, abs_lower_offset_1, freq_lower_offset_1,</td>
<td>When the result mode is “B”. ref_power : Reference absolute power</td>
</tr>
<tr>
<td>Fetch</td>
<td></td>
<td></td>
<td>-999.0, -999.0, abs_lower_offset_1, abs_upper_offset_1, rel_upper_offset_1,</td>
<td>abs_lower_offset_1 : Peak value of absolute power of lower Offset-m</td>
</tr>
<tr>
<td></td>
<td></td>
<td></td>
<td>freq_upper_offset_1, margin_lower_offset_1, margin_upper_offset_1,</td>
<td>abs_upper_offset_1 : Peak value of absolute power of upper Offset-m</td>
</tr>
<tr>
<td></td>
<td></td>
<td></td>
<td>margin_lower_offset_12, margin_upper_offset_12, (n=1 or when omitted)</td>
<td>margin_lower_offset_12 : Minimum value of margin of lower Offset-m</td>
</tr>
<tr>
<td>Spectrum Emission Mask</td>
<td>---</td>
<td>READ:SEM? n</td>
<td>-999.0, -999.0, rel_lower_offset_1, abs_lower_offset_1, freq_lower_offset_1,</td>
<td>margin_upper_offset_12 : Minimum value of margin of upper Offset-m</td>
</tr>
<tr>
<td>Read</td>
<td></td>
<td></td>
<td>... -999.0, -999.0, rel_upper_offset_1, abs_upper_offset_1, freq_upper_offset_1,</td>
<td>margin_upper_offset_12 : Minimum value of margin of upper Offset-m</td>
</tr>
<tr>
<td></td>
<td></td>
<td></td>
<td>margin_lower_offset_12, margin_upper_offset_12, (n=1 or when omitted)</td>
<td>freq_lower_offset_12 : Frequency of peak level of lower Offset-m</td>
</tr>
<tr>
<td>Spectrum Emission Mask</td>
<td>---</td>
<td>MEAS:SEM? n</td>
<td>-999.0, -999.0, rel_lower_offset_1, abs_lower_offset_1, freq_lower_offset_1,</td>
<td>freq_upper_offset_12 : Frequency of peak level of upper Offset-m</td>
</tr>
<tr>
<td>Function</td>
<td>Command</td>
<td>Query</td>
<td>Response</td>
<td>Remarks</td>
</tr>
<tr>
<td>-------------------</td>
<td>---------</td>
<td>----------------</td>
<td>--------------------------------------------------------------------------</td>
<td>--------------------------------------------------------------------------</td>
</tr>
</tbody>
</table>
| Spectrum Emission | ---     | FETC:SEM? n    | -999.0,-999.0, lower_offset_1,upper_offset_1, upper_offset_12, lower_offset_12, upper_offset_12 | When the result mode is "B". ref_power :Reference absolute power
abs_lower_offset_m : Peak value of absolute power of lower Offset-m
abs_upper_offset_m : Peak value of absolute power of upper Offset-m
rel_lower_offset_m : Peak value of relative power of lower Offset-m
rel_upper_offset_m : Peak value of relative power of upper Offset-m
margin_lower_offset_m : Minimum value of margin of lower Offset-m
margin_upper_offset_m : Minimum value of margin of upper Offset-m
freq_lower_offset_m : Frequency of peak level of lower Offset-m
freq_upper_offset_m : Frequency of peak level of upper Offset-m
lower_offset_m : Judgment result of lower Offset-m
upper_offset_m : Judgment result of upper Offset-m |
| Mask Fetch        | ---     | READ:SEM? n    | -999.0,-999.0, abs_lower_offset_1,abs_upper_offset_1, abs_upper_offset_12, abs_lower_offset_12 | (n=7 or 8)                                                                  |
| Spectrum Emission | ---     | MEAS:SEM? n    | -999.0,-999.0, rel_lower_offset_1,rel_upper_offset_1, rel_upper_offset_12, rel_lower_offset_12 | (n=11)                                                                    |
| Measure           | ---     |                |                                                                          |                                                                          |
### Table 3.10.6-1  Spectrum Emission Mask measurement function setting messages (Cont’d)

<table>
<thead>
<tr>
<th>Function</th>
<th>Command</th>
<th>Query</th>
<th>Response</th>
<th>Remarks</th>
</tr>
</thead>
<tbody>
<tr>
<td>Spectrum Emission Mask Fetch</td>
<td>---</td>
<td>FETC:SEM? n</td>
<td>total_judge, ref_power, abs_lower_offset_1, abs_upper_offset_1, ...</td>
<td>When the result mode is “B”. ref_power : Reference absolute power</td>
</tr>
<tr>
<td></td>
<td></td>
<td></td>
<td>margin_lower_offset_1, margin_upper_offset_1, freq_lower_offset_1, ...</td>
<td>abs_lower_offset_m : Peak value of absolute power of lower Offset-m</td>
</tr>
<tr>
<td></td>
<td></td>
<td></td>
<td>lower_offset_1, upper_offset_1, ...</td>
<td>abs_upper_offset_m : Peak value of absolute power of upper Offset-m</td>
</tr>
<tr>
<td></td>
<td></td>
<td></td>
<td>abs_lower_offset_12, abs_upper_offset_12, margin_lower_offset_12, ...</td>
<td>rel_lower_offset_12, margin_lower_offset_12, margin_upper_offset_12, freq_lower_offset_12, freq_upper_offset_12, lower_offset_12, upper_offset_12 (n=13)</td>
</tr>
<tr>
<td></td>
<td></td>
<td></td>
<td></td>
<td>rel_upper_offset_12 : Peak value of relative power of lower Offset-m</td>
</tr>
<tr>
<td></td>
<td></td>
<td></td>
<td></td>
<td>margin_lower_offset_12 : Minimum value of margin of lower Offset-m</td>
</tr>
<tr>
<td></td>
<td></td>
<td></td>
<td></td>
<td>margin_upper_offset_12 : Minimum value of margin of upper Offset-m</td>
</tr>
<tr>
<td>Spectrum Emission Mask Read</td>
<td>---</td>
<td>READ:SEM? n</td>
<td></td>
<td>Frequency of peak level of lower Offset-m</td>
</tr>
<tr>
<td></td>
<td></td>
<td></td>
<td></td>
<td>freq_upper_offset_12 : Frequency of peak level of upper Offset-m</td>
</tr>
<tr>
<td>Spectrum Emission Mask Measure</td>
<td>---</td>
<td>MEAS:SEM? n</td>
<td></td>
<td>Judgment result of lower Offset-m</td>
</tr>
<tr>
<td></td>
<td></td>
<td></td>
<td></td>
<td>Judgment result of upper Offset-m</td>
</tr>
</tbody>
</table>
### 3.10.7 Spurious Emission Measurement function settings

Table 3.10.7-1 lists device messages for setting the Spurious Emission measurement functions.

<table>
<thead>
<tr>
<th>Function</th>
<th>Command</th>
<th>Query</th>
<th>Response</th>
<th>Remarks</th>
</tr>
</thead>
</table>
| Measure Spurious Emission | SPUR switch_com | SPUR?   | switch_res | switch_com :
|                        |                  |         |          | = ON|OFF|1|0 |
| Spurious Emission Result Type | SPUR:TYPE type_com | SPUR:TYPE? | type_res | type_com : Measurement result type
|                        |                  |         |          | = WORS|EXAM|PEAK|FULL |
|                        |                  |         |          | = ON|OFF|1|0 |
|                        |                  |         |          | = ON|OFF|1|0 |
| Displayed Summary Table Range/Result | DISP:SPUR:STAB mode_com | DISP:SPUR:STAB? | mode_res | mode_com :
<p>|                        |                  |         |          | = RANG|RES |
| Next Page              | DISP:SPUR:SEGM:NEXT | ---     | ---      | --- |
| Previous Page          | DISP:SPUR:SEGM:PREV | ---     | ---      | --- |</p>
<table>
<thead>
<tr>
<th>Function</th>
<th>Command</th>
<th>Query</th>
<th>Response</th>
<th>Remarks</th>
</tr>
</thead>
<tbody>
<tr>
<td>Displayed Restart Query</td>
<td>---</td>
<td>DISP:SPUR:SEG:M:RES</td>
<td>switch</td>
<td>switch :</td>
</tr>
<tr>
<td></td>
<td></td>
<td>T?</td>
<td>switch :</td>
<td>= 1</td>
</tr>
<tr>
<td></td>
<td></td>
<td></td>
<td></td>
<td>= ON</td>
</tr>
<tr>
<td>Fail Stop</td>
<td>SPUR:FST switch_com</td>
<td>SPUR:FST?</td>
<td>switch_res</td>
<td>switch_com :</td>
</tr>
<tr>
<td></td>
<td></td>
<td></td>
<td></td>
<td>= ON</td>
</tr>
<tr>
<td>Segment On/Off</td>
<td>SPUR:SEGM:STAT switch_n_com</td>
<td>SPUR:SEGM:STAT?</td>
<td>switch_n_res</td>
<td>switch_n_com :</td>
</tr>
<tr>
<td></td>
<td></td>
<td></td>
<td></td>
<td>= ON</td>
</tr>
<tr>
<td>Frequency</td>
<td></td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td>Spurious Emission Stop</td>
<td>SPUR:FREQ:STOP freq_n</td>
<td>SPUR:FREQ:STOP?</td>
<td>freq_n</td>
<td>n :1 to 20</td>
</tr>
<tr>
<td>Frequency</td>
<td></td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td>Level</td>
<td></td>
<td>D:TRAC:Y:RLEV?</td>
<td></td>
<td></td>
</tr>
<tr>
<td>Spurious Emission Attenuator</td>
<td>SPUR:ATT rel_ampl_n</td>
<td>AUTO</td>
<td>SPUR:ATT?</td>
<td>rel_ampl_n</td>
</tr>
<tr>
<td></td>
<td></td>
<td></td>
<td></td>
<td>n :1 to 20</td>
</tr>
<tr>
<td>Function</td>
<td>Command</td>
<td>Query</td>
<td>Response</td>
<td>Remarks</td>
</tr>
<tr>
<td>------------------------------------------------------</td>
<td>--------------------------</td>
<td>--------------</td>
<td>---------------------------</td>
<td>---------------</td>
</tr>
<tr>
<td>Spurious Emission Resolution Bandwidth</td>
<td>SPUR:BAND bandwidth_n</td>
<td>SPUR:BAND?</td>
<td>bandwidth_n</td>
<td>n :1 to 20</td>
</tr>
<tr>
<td>Spurious Emission Video Bandwidth</td>
<td>SPUR:BAND:VID bandwidth_n</td>
<td>SPUR:BAND:VID?</td>
<td>bandwidth_n</td>
<td>OFF</td>
</tr>
<tr>
<td>Function</td>
<td>Command</td>
<td>Query</td>
<td>Response</td>
<td>Remarks</td>
</tr>
<tr>
<td>---------------------------------------</td>
<td>------------------------------</td>
<td>--------------</td>
<td>----------</td>
<td>-------------</td>
</tr>
<tr>
<td>Spurious Emission Detection Mode</td>
<td>SPUR:DET mode_n</td>
<td>SPUR:DET?</td>
<td>mode_n</td>
<td>n : 1 to 20</td>
</tr>
<tr>
<td>Spurious Emission Trace Point</td>
<td>SPUR:SWE:POIN integer_n</td>
<td>SPUR:SWE:POIN?</td>
<td>integer_n</td>
<td>n : 1 to 20</td>
</tr>
<tr>
<td>Spurious Emission Storage Count</td>
<td>SPUR:AVER:COUN integer_n</td>
<td>SPUR:AVER:COUN?</td>
<td>integer_n</td>
<td>n : 1 to 20</td>
</tr>
<tr>
<td>Use Common Correction Table</td>
<td>CALC:CORR:COMM</td>
<td>---</td>
<td>---</td>
<td>---</td>
</tr>
<tr>
<td>Recall Correction Table</td>
<td>CALC:CORR:REC filename,device</td>
<td>---</td>
<td>---</td>
<td>---</td>
</tr>
</tbody>
</table>
Table 3.10.7-1  Spurious Emission Measurement function setting messages (Cont’d)

<table>
<thead>
<tr>
<th>Function</th>
<th>Command</th>
<th>Query</th>
<th>Response</th>
<th>Remarks</th>
</tr>
</thead>
<tbody>
<tr>
<td>Spurious Emission Search Threshold Level</td>
<td>SPUR:PEAK:THR real_n</td>
<td>SPUR:PEAK:THR?</td>
<td>real_n</td>
<td>n : 1 to 20</td>
</tr>
<tr>
<td>Spurious Emission Time Domain RBW</td>
<td>SPUR:TDOM:BAND bandwidth_n</td>
<td>SPUR:TDOM:BAND?</td>
<td>bandwidth_n</td>
<td>n : 30 to 31.25</td>
</tr>
<tr>
<td>Function</td>
<td>Command</td>
<td>Query</td>
<td>Response</td>
<td>Remarks</td>
</tr>
<tr>
<td>--------------------------------------</td>
<td>------------------</td>
<td>------------</td>
<td>----------</td>
<td>---------------</td>
</tr>
<tr>
<td>Save Spurious Emission Parameter</td>
<td>MMEM:STOR:SPUR:TABL integer</td>
<td>---</td>
<td>---</td>
<td></td>
</tr>
<tr>
<td>Recall Spurious Emission Parameter</td>
<td>MMEM:LOAD:SPUR:TABL integer</td>
<td>---</td>
<td>---</td>
<td></td>
</tr>
<tr>
<td>Spurious Emission Continue</td>
<td>INIT:SPUR:PAUS:CONT</td>
<td>---</td>
<td>---</td>
<td></td>
</tr>
<tr>
<td>Spurious Emission Pause Status Query</td>
<td>---</td>
<td>INIT:SPUR:PAUS:STAT? switch</td>
<td>switch : = 1</td>
<td>0</td>
</tr>
<tr>
<td>Spurious Emission Configure</td>
<td>CONF:SPUR</td>
<td>---</td>
<td>---</td>
<td></td>
</tr>
<tr>
<td>Spurious Emission Initiate</td>
<td>INIT:SPUR</td>
<td>---</td>
<td>---</td>
<td></td>
</tr>
<tr>
<td>Low Phase Noise for Spurious Emission Measurement</td>
<td>SPUR:SYNT:LPH switch</td>
<td>SPUR:SYNT:LPH? switch</td>
<td>switch : ON</td>
<td>OFF</td>
</tr>
<tr>
<td>Low Phase Noise Status Query</td>
<td>---</td>
<td>FREQ:SYNT:LPH:STAT? status</td>
<td>status : 1</td>
<td>0</td>
</tr>
</tbody>
</table>
### Table 3.10.7-1  Spurious Emission Measurement function setting messages (Cont'd)

<table>
<thead>
<tr>
<th>Function</th>
<th>Command</th>
<th>Query</th>
<th>Remarks</th>
</tr>
</thead>
<tbody>
<tr>
<td><strong>Spurious Emission Fetch</strong></td>
<td>---</td>
<td>**FETC:**SPUR? n</td>
<td>When Result Mode is set to A:</td>
</tr>
<tr>
<td></td>
<td></td>
<td>When Spurious Emission Result Type is Worst:</td>
<td>judge, spur_1, range_1, peak_1, margin_1, limit_1, judge_1, spur_2, range_2, freq_2, peak_2, margin_2, limit_2, judge_2</td>
</tr>
<tr>
<td></td>
<td></td>
<td>When Result Mode is set to A:</td>
<td>......</td>
</tr>
<tr>
<td></td>
<td></td>
<td>When Spurious Emission Read Type is set to Peak:</td>
<td>spur_20, range_20, freq_20, peak_20, margin_20, limit_20, judge_20</td>
</tr>
<tr>
<td></td>
<td></td>
<td>(n=1 or when omitted.)</td>
<td></td>
</tr>
<tr>
<td><strong>Spurious Emission Read</strong></td>
<td>---</td>
<td>**READ:**SPUR? n</td>
<td>(When Spurious Emission Result Type is set to Peak:)</td>
</tr>
<tr>
<td></td>
<td></td>
<td>when Result Mode is set to B:</td>
<td>judge, spur_1, range_1, freq_1, peak_1, margin_1, limit_1, judge_1, spur_2, range_2, freq_2, peak_2, margin_2, limit_2, judge_2</td>
</tr>
<tr>
<td></td>
<td></td>
<td>When Result Mode is set to B:</td>
<td>......</td>
</tr>
<tr>
<td></td>
<td></td>
<td>When Result Mode is set to B:</td>
<td>spur_n, freq_n, peak_n, margin_n, limit_n, judge_n</td>
</tr>
<tr>
<td></td>
<td></td>
<td>(n=1 or when omitted.)</td>
<td></td>
</tr>
<tr>
<td></td>
<td></td>
<td>tracedata_1, tracedata_2, ... tracedata_m</td>
<td>tracedata_1, tracedata_2, ... tracedata_m (n=1 to 42)</td>
</tr>
<tr>
<td></td>
<td></td>
<td>tracedata_1, tracedata_2, ... tracedata_m</td>
<td>tracedata_1, tracedata_2, ... tracedata_m (n=22)</td>
</tr>
<tr>
<td><strong>Spurious Emission Measure</strong></td>
<td>---</td>
<td>**MEAS:**SPUR? n</td>
<td></td>
</tr>
<tr>
<td></td>
<td></td>
<td>tracedata_1, tracedata_2, ... tracedata_m</td>
<td>tracedata_1, tracedata_2, ... tracedata_m (n=2 to 21)</td>
</tr>
<tr>
<td></td>
<td></td>
<td>tracedata_1, tracedata_2, ... tracedata_m</td>
<td>tracedata_1, tracedata_2, ... tracedata_m (n=22)</td>
</tr>
</tbody>
</table>
# Chapter 3 Native Device Message List

## 3.11 Batch Measure Function Settings

Table 3.11·1 lists device messages for setting the Batch Measurement function.

<table>
<thead>
<tr>
<th>Function</th>
<th>Command</th>
<th>Query</th>
<th>Response</th>
<th>Remarks</th>
</tr>
</thead>
<tbody>
<tr>
<td>Reloading Parameter List Files</td>
<td>MMEM:REL:BATC device</td>
<td>---</td>
<td>---</td>
<td>device : drive name = D</td>
</tr>
<tr>
<td>Batch Measure</td>
<td></td>
<td></td>
<td></td>
<td>n: 1</td>
</tr>
<tr>
<td></td>
<td></td>
<td></td>
<td></td>
<td>filename: parameter list file name</td>
</tr>
<tr>
<td></td>
<td></td>
<td></td>
<td></td>
<td>device : drive name = D</td>
</tr>
<tr>
<td>Measure</td>
<td></td>
<td></td>
<td></td>
<td>n: 1</td>
</tr>
<tr>
<td></td>
<td></td>
<td></td>
<td></td>
<td>filename: parameter list file name</td>
</tr>
<tr>
<td></td>
<td></td>
<td></td>
<td></td>
<td>device : drive name = D</td>
</tr>
<tr>
<td>Batch Measure</td>
<td></td>
<td></td>
<td></td>
<td>n: 1</td>
</tr>
<tr>
<td></td>
<td></td>
<td></td>
<td></td>
<td>filename: parameter list file name</td>
</tr>
<tr>
<td></td>
<td></td>
<td></td>
<td></td>
<td>device : drive name = D</td>
</tr>
<tr>
<td>Measure</td>
<td></td>
<td></td>
<td></td>
<td>n: 1 to 42</td>
</tr>
<tr>
<td></td>
<td></td>
<td></td>
<td></td>
<td>filename: parameter list file name</td>
</tr>
<tr>
<td></td>
<td></td>
<td></td>
<td></td>
<td>device : drive name = D</td>
</tr>
<tr>
<td>Function</td>
<td>Command</td>
<td>Query</td>
<td>Response</td>
<td>Remarks</td>
</tr>
<tr>
<td>--------------------------------</td>
<td>---------</td>
<td>----------------------------------------------------------------------</td>
<td>------------------------------------------------------------------------</td>
<td>------------------------------------------------------------------------</td>
</tr>
<tr>
<td>Transmit Intermodulation Batch Measure</td>
<td>---</td>
<td>MEAS:BATC:IM? filename,spa_freq,[sg_freq[ ,device]]</td>
<td>Refer to Chapter 4, “Native Device Message Details”.</td>
<td>spa_freq : Center frequency of Spectrum Analyzer</td>
</tr>
<tr>
<td></td>
<td></td>
<td></td>
<td></td>
<td>sg_freq: Signal Generator frequency</td>
</tr>
<tr>
<td></td>
<td></td>
<td></td>
<td></td>
<td>filename: parameter list file name</td>
</tr>
<tr>
<td></td>
<td></td>
<td></td>
<td></td>
<td>device : drive name = D</td>
</tr>
<tr>
<td>Measure Power Adjust</td>
<td>---</td>
<td>:MEAS:POW? rbw,length,sg_start_level,sg_max_level,target,range[frequency,tracerepoint,count[ ,adjust_log[ ,sg_offset_switch]]]</td>
<td>Refer to Chapter 4, “Native Device Message Details”.</td>
<td>---</td>
</tr>
</tbody>
</table>
### 3.12 Reference Signal Settings

Device messages for setting reference signal are shown in Table 3.12-1.

<table>
<thead>
<tr>
<th>Function</th>
<th>Command</th>
<th>Query</th>
<th>Response</th>
<th>Remarks</th>
</tr>
</thead>
<tbody>
<tr>
<td>Adjust Reference Clock</td>
<td>CAL:RCL integer</td>
<td>CAL:RCL?</td>
<td>integer</td>
<td>integer: Adjustment value</td>
</tr>
<tr>
<td></td>
<td>CAL:RCL:PRES</td>
<td>---</td>
<td>---</td>
<td></td>
</tr>
</tbody>
</table>
3.13 Other Settings

Table 3.13-1 lists device messages for other settings.

<table>
<thead>
<tr>
<th>Function</th>
<th>Command</th>
<th>Query</th>
<th>Response</th>
<th>Remarks</th>
</tr>
</thead>
<tbody>
<tr>
<td>Measurement Status</td>
<td>---</td>
<td>MSTAT?</td>
<td>status</td>
<td>status = 0</td>
</tr>
<tr>
<td>Uncal Status Query</td>
<td>---</td>
<td>UCL?</td>
<td>status</td>
<td>status : UNCAL</td>
</tr>
<tr>
<td>Erase Warm Up Message</td>
<td>ERASEWUP</td>
<td>---</td>
<td>---</td>
<td></td>
</tr>
<tr>
<td>Display Uncal Message</td>
<td>UNC on_off</td>
<td>UNC?</td>
<td>on_off</td>
<td></td>
</tr>
<tr>
<td>Display Title</td>
<td>TTL on_off</td>
<td>TTL?</td>
<td>on_off</td>
<td></td>
</tr>
<tr>
<td>Entry Title Character</td>
<td>TITLE string</td>
<td>TITLE?</td>
<td>string</td>
<td>string:Character string</td>
</tr>
</tbody>
</table>
### 3.14 Setting External Mixer

Table 3.14-1 lists the device messages related to External Mixer settings.

<table>
<thead>
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<th>Query</th>
<th>Response</th>
<th>Remarks</th>
</tr>
</thead>
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<td>MXRMODE</td>
<td>MXRMODE?</td>
<td>mode</td>
<td>mode : Mixer mode</td>
</tr>
<tr>
<td></td>
<td>mode</td>
<td></td>
<td></td>
<td>=EXT</td>
</tr>
<tr>
<td>External Mixer Band Select</td>
<td>FULBAND</td>
<td>FULBAND?</td>
<td>band</td>
<td>band : External mixer band</td>
</tr>
<tr>
<td></td>
<td>band</td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td>External Mixer Bias</td>
<td>MBIAS</td>
<td>MBIAS?</td>
<td>bias</td>
<td>bias : External mixer’s bias current</td>
</tr>
<tr>
<td></td>
<td>bias</td>
<td></td>
<td></td>
<td>Range: 0.1 to 20.0 mA</td>
</tr>
<tr>
<td>External Mixer Conversion Loss</td>
<td>CNVLOSS</td>
<td>CNVLOSS?</td>
<td>power</td>
<td>power : Conversion Loss of External Mixer</td>
</tr>
<tr>
<td></td>
<td>power</td>
<td></td>
<td></td>
<td>Range: 0.00 to 99.99 dB</td>
</tr>
<tr>
<td>Signal Identifier</td>
<td>SIGID</td>
<td>SIGID?</td>
<td>switch</td>
<td>switch : Signal Identifier</td>
</tr>
<tr>
<td></td>
<td>switch</td>
<td></td>
<td></td>
<td>=1 (ON)</td>
</tr>
<tr>
<td>Signal Identifier Mode</td>
<td>SIGIDMODE</td>
<td>SIGIDMODE?</td>
<td>mode</td>
<td>mode : Signal ID mode</td>
</tr>
<tr>
<td></td>
<td>mode</td>
<td></td>
<td></td>
<td>=ISUPPRESS</td>
</tr>
</tbody>
</table>
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This chapter describes detailed specifications on remote control commands for executing functions of this application in alphabetical order. Refer to the MS2690A/MS2691A/MS2692A and MS2830A/MS2840A/MS2850A Signal Analyzer Operation Manual (Mainframe Remote Control) for detailed specifications on IEEE488.2 common device messages and application common device messages.

Some functions of this instrument only correspond to SCPI commands. You can perform a remote control of the function in Native mode by replacing the corresponding SCPI commands with Native commands. Refer to section 1.6.2 “How to use SCPI commands in Native mode” in the MS2690A/MS2691A/MS2692A and MS2830A/MS2840A/MS2850A Signal Analyzer Operation Manual (Mainframe Remote Control) for replacement. Also refer to Chapter 2 “SCPI Device Messages” for detailed specifications on SCPI commands.

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<td>MEAS:POW?</td>
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<td>MKR/MKR?</td>
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<td>MKRL</td>
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**ACTIVETRACE/ACTIVETRACE?**

**Active Trace**

**Function**

This command selects the trace (active trace) that operates the marker.

**Command**

`ACTIVETRACE trace`

**Query**

`ACTIVETRACE?`

**Response**

`trace`

**Parameter**

- **trace**
  - Trace type to be activated
  - TRA: Trace A
  - TRB: Trace B
  - TRC: Trace C
  - TRD: Trace D
  - TRE: Trace E
  - TRF: Trace F

**Details**

This command is not available during the Spectrum Emission Mask measurement or the Spurious Emission measurement.

**Example of Use**

To set Trace B to be activated.

```
ACTIVETRACE TRB
ACTIVETRACE?
> TRB
```
ADJCARRIERCNT/ADJCARRIERCNT?
ACP In Band Center

Function
This command sets the In Band center frequency for ACP measurement.

Command
ADJCARRIERCNT freq

Query
ADJCARRIERCNT?

Response
freq
  Suffix code None. Value is returned in Hz units.

Parameter
freq In Band center frequency
  Range (Start Frequency) to (Stop Frequency)
  Resolution 1 Hz
  Suffix code HZ, KHZ, KZ, MHZ, MZ, GHZ, GZ
  Hz is used when omitted.

Example of Use
To set In Band center frequency to 3 GHz.
ADJCARRIERCNT 3GHZ
ADJCARRIERCNT?
> 3000000000
**ADJCARRIERNUM/ADJCARRIERNUM?**

ACP Carrier Number

**Function**

This command sets the carrier number for ACP measurement.

**Command**

```
ADJCARRIERNUM n
```

**Query**

```
ADJCARRIERNUM?
```

**Response**

```
n
```

| Suffix Code | None |

**Parameter**

<table>
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<tr>
<th>n</th>
<th>Carrier Number</th>
</tr>
</thead>
<tbody>
<tr>
<td>Range</td>
<td>1 to 12</td>
</tr>
<tr>
<td>Resolution</td>
<td>1</td>
</tr>
<tr>
<td>Suffix Code</td>
<td>None</td>
</tr>
</tbody>
</table>

**Details**

This command is not available when ACP Reference is set to Span Total.

**Example of Use**

To set the carrier number to 12.

```
ADJCARRIERNUM 12
ADJCARRIERNUM?
> 12
```
**ADJCARRIERSPAC/ADJCARRIERSPAC?**

**ACP Carrier Spacing**

**Function**

This command sets the frequency interval among carriers for ACP measurement.

**Command**

`ADJCARRIERSPAC freq`

**Query**

`ADJCARRIERSPAC?`

**Response**

`freq`

Suffix code: None. Value is returned in Hz units.

**Parameter**

`freq`

Frequency interval among carriers

Range: 0 to 1 GHz

Resolution: 1 Hz

Suffix Code: HZ,KHZ,KZ,MHZ,MZ,GHz,GZ

Hz is used when omitted.

**Details**

This command is not available when ACP Reference is set to Span Total.

**Example of Use**

To set the frequency interval among carriers to 12.3 MHz.

```
ADJCARRIERSPAC 12300000
ADJCARRIERSPAC?
> 12300000
```
ADJCHBW/ADJCHBW?
ACP Offset CH BW

Function
This command sets the offset channel bandwidth for ACP measurement.

Command
ADJCHBW freq

Query
ADJCHBW?

Response
freq
Suffix code None. Value is returned in Hz units.

Parameter
freq Offset Channel bandwidth
Range 1 to 1000000000 Hz
Resolution 1 Hz
Suffix code HZ, KHZ, KZ, MHZ, MZ, GHZ, GZ
Hz is used when omitted.

Example of Use
To set the offset channel bandwidth to 3.84 MHz.
ADJCHBW 3.84MHZ
ADJCHBW?
> 3840000
ADJCHSP/ADJCHSP?
ACP Offset Frequency
ACP Offset-1 Frequency

Function
This command sets the offset frequency for Offset Channel 1 or the specified offset channel for ACP measurement.

Command
ADJCHSP freq
ADJCHSP offset,freq

Query
ADJCHSP?

Response
freq
Suffix code None. Value is returned in Hz units.

Parameter
freq Offset channel
Range –1000000000 to 1000000000 Hz
Resolution 1 Hz
Suffix code HZ, KHZ, KZ, MHZ, MZ, GHZ, GZ
Hz is used when omitted.
offset Measurement channel
1 Offset-1
2 Offset-2
3 Offset-3

Example of Use
To set the offset frequency of Offset Channel 1 to 5 MHz.
ADJCHSP 5MHZ
ADJCHSP?
> 5000000
**ADJCHSPF/ADJCHSPF?**

**ACP Offset-2 Frequency**

**Function**

This command sets the offset frequency of Offset Channel 2 for ACP measurement.

**Command**

`ADJCHSPF freq`

**Query**

`ADJCHSPF?`

**Response**

`freq`

Suffix code: None. Value is returned in Hz units.

**Parameter**

- `freq`: Offset frequency
- Range: $-1000000000$ to $1000000000$ Hz
- Resolution: 1 Hz
- Suffix code: HZ, KHZ, KZ, MHZ, MZ, GHZ, GZ
  
  Hz is used when omitted.

**Example of Use**

To set offset frequency of Offset Channel 2 to 5 MHz.

```
ADJCHSPF 5MHZ
ADJCHSPF?
> 5000000
```
ADJCHSPFF/ADJCHSPFF?
ACP Offset-3 Frequency

Function

This command sets the offset frequency of Offset Channel 3 for ACP measurement.

Command

\texttt{ADJCHSPFF freq}

Query

\texttt{ADJCHSPFF?}

Response

\texttt{freq}

Suffix code None. Value is returned in Hz units.

Parameter

\texttt{freq} Offset frequency

Range \(-1000000000\) to \(1000000000\) Hz

Resolution 1 Hz

Suffix code HZ, KHZ, KZ, MHZ, MZ, GHZ, GZ

Hz is used when omitted.

Example of Use

To set offset frequency of Offset Channel 3 to 5 MHz.
\begin{verbatim}
ADJCHSPFF 5MHZ
ADJCHSPFF?
> 5000000
\end{verbatim}
ADJFILTERTYPE/ADJFILTERTYPE?
ACP Filter Type

Function
This command selects filter type for ACP measurement.

Command
ADJFILTERTYPE type,target

Query
ADJFILTERTYPE? target

Response
type
type, type
(When target is omitted: The former indicates the offset channel filter, and the latter indicates the In Band filter.)

Parameter
type Filter type
RECT Rectangle Filter
NYQUIST Nyquist Filter
ROOTNYQUIST Root Nyquist Filter
target Setting target
INBAND Sets the In Band filter
OFFSET Sets the offset channel filter
When omitted: Applies the same filter type to both the In Band and offset channel filters.

Details
This command is not available when ACP Reference is set to Span Total.

Example of Use
To set the filter type to root nyquist filter.
ADJFILTERTYPE ROOTNYQUIST
ADJFILTERTYPE?
> ROOTNYQUIST,ROOTNYQUIST
**ADJINBW/ADJINBW?**

ACP Carrier BW

Function

This command sets the carrier measurement bandwidth for ACP measurement.

Command

ADJINBW freq

Query

ADJINBW?

Response

freq

Suffix code None. Value is returned in Hz units.

Parameter

freq

Inband channel bandwidth

Range 1 to 1000000000 Hz

Resolution 1 Hz

Suffix code HZ, KHZ, KZ, MHZ, MZ, GHZ, GZ

Hz is used when omitted.

Example of Use

To set the inband channel bandwidth to 3.84 MHz.

ADJINBW 3.84MHZ

ADJINBW?

> 3840000
ADJOFFSET1/ADJOFFSET1?
ACP Offset-1

Function
This command sets measurement channel 1 ON/OFF for ACP measurement.

Command
ADJOFFSET1 on_off

Query
ADJOFFSET1?

Response
on_off

Parameter
<table>
<thead>
<tr>
<th>on_off</th>
<th>Description</th>
</tr>
</thead>
<tbody>
<tr>
<td>ON</td>
<td>Measures measurement channel 1.</td>
</tr>
<tr>
<td>OFF</td>
<td>Does not measure measurement channel 1.</td>
</tr>
</tbody>
</table>

Example of Use
To measure measurement channel 1.
ADJOFFSET1 ON
ADJOFFSET1?
> ON
ADJOFFSET2/ADJOFFSET2?
ACP Offset-2

Function
This command sets measurement channel 2 ON/OFF for ACP measurement.

Command
ADJOFFSET2 on_off

Query
ADJOFFSET2?

Response
on_off

Parameter
on_off
ON  Measures measurement channel 2.
OFF  Does not measure measurement channel 2.

Example of Use
To measure measurement channel 2.
ADJOFFSET2 ON
ADJOFFSET2?
> ON
ADJOFFSET3/ADJOFFSET3?
ACP Offset-3

Function
This command sets measurement channel 3 ON/OFF for ACP measurement.

Command
ADJOFFSET3 on_off

Query
ADJOFFSET3?

Response
on_off

Parameter
on_off
- ON: Measures measurement channel 3.
- OFF: Does not measure measurement channel 3.

Example of Use
To measure measurement channel 3.
ADJOFFSET3 ON
ADJOFFSET3?
> ON
ADJPWRTYPE/ADJPWRTYPE?
ACP Power Result Type

Function
This command switches the result display type for ACP measurement.

Command
ADJPWRTYPE mode

Query
ADJPWRTYPE?

Response
mode

Parameter
mode Result display type
CARRIER Sets the result display for ACP measurement to Carrier Power.
OFFSET Sets the result display for ACP measurement to Offset Channel Power.

Example of Use
To set the result display for ACP measurement to Carrier Power.
ADJPWRTYPE CARRIER
ADJPWRTYPE?
> CARRIER
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ADJROF/ADJROF?
ACP Rolloff Ratio

Function
This command sets the rolloff ratio of the In Band filter and/or offset channel filter for ACP measurement.

Command
ADJROF ratio, target

Query
ADJROF? target

Response
ratio
ratio, ratio
(When target is omitted: The former indicates the offset channel filter rolloff ratio, and the latter indicates the In Band filter rolloff ratio.)

Parameter

<table>
<thead>
<tr>
<th>ratio</th>
<th>Filter rolloff ratio</th>
</tr>
</thead>
<tbody>
<tr>
<td>Range</td>
<td>0.01 to 1.00</td>
</tr>
<tr>
<td>Resolution</td>
<td>0.01</td>
</tr>
<tr>
<td>Suffix code</td>
<td>None</td>
</tr>
</tbody>
</table>

<table>
<thead>
<tr>
<th>target</th>
<th>Setting target</th>
</tr>
</thead>
<tbody>
<tr>
<td>INBAND</td>
<td>Sets the rolloff ratio of In Band filter.</td>
</tr>
<tr>
<td>OFFSET</td>
<td>Sets the rolloff ratio of offset channel filter.</td>
</tr>
<tr>
<td>When omitted:</td>
<td>Applies the same rolloff ratio to both the In Band and offset channel filters.</td>
</tr>
</tbody>
</table>

Details
This command is not available when the target ACP filter type is set to either of the following:
• Nyquist
• Root Nyquist
This command is not available when ACP Reference is set to Span Total.

Example of Use
To set the filter rolloff ratio to 0.22.
ADJROF 0.22
ADJROF?
> 0.22, 0.22
ALLMKPK?
All Peak Search and Query

Function

This command queries all peak point frequencies (time) and levels contained in the trace data displayed in batch.

Query

ALLMKPK?

Response

freq1,level1,freq2,level2,...
(When frequency domain displayed)
time1,level1,time2,level2,...
(When time domain displayed)

freq
Peak point frequency
No suffix code, in Hz units, resolution: 0.01 Hz
time
Peak point time
No suffix code, in µs units, resolution: 0.001 µs
level
Peak point level
No suffix code, in dB units, 0.001 dB
(When marker level display units are dB-system units)
No suffix code, in µV units, 0.01 pV
(When marker level display units are V-system units)
No suffix code, in µW units, 0.01 yW
(When marker level display units are W-system units)

Details

Response data is returned based on the frequency (or time) to level ratio for all peak points contained in trace data displayed. Data is returned in level data size order.

Example of Use

To query all peak points in batch:
(1: 100 Hz, 5.678 dBm),(2: 200 Hz, 1.234 dBm), ...
ALLMKPK?
> 100.00, 5.678, 200.00, 1.234, ...
**AMD/AMD?**

Storage Mode (Trace A)

**Function**

This command selects Trace A storage mode.

**Command**

\texttt{AMD mode}

**Query**

\texttt{AMD?}

**Response**

\texttt{mode}

**Parameter**

<table>
<thead>
<tr>
<th>mode</th>
<th>Storage mode</th>
</tr>
</thead>
<tbody>
<tr>
<td>0</td>
<td>Off</td>
</tr>
<tr>
<td>1</td>
<td>Max Hold</td>
</tr>
<tr>
<td>2</td>
<td>Average</td>
</tr>
<tr>
<td>3</td>
<td>Min Hold</td>
</tr>
<tr>
<td>6</td>
<td>Linear Average</td>
</tr>
</tbody>
</table>

**Example of Use**

To set Trace A storage mode to Average.

\texttt{AMD 2}

\texttt{AMD?}

\texttt{> 2}
**AT/AT?**

**RF Attenuator**

This command sets the RF attenuator.

**Function**

**Command**

AT att
AT action

**Query**

AT?

**Response**

att

**Parameter**

att  
Attenuator value  
Range  0 to 60 dB  
Resolution  
[MS269xA], [MS2850A]  
2 dB  
[MS2830A], [MS2840A]  
2 dB or 10 dB  
Refer to “Table 2.4.2-3 Resolution of Input Attenuator” in the MS2830A/MS2840A/MS2850A Signal Analyzer Operation Manual (Spectrum Analyzer Function Operation).

Suffix code  DB, dB is used even when omitted.
action  RF attenuator setting method  
AUTO  Automatically sets based on reference level and other settings.
UP  Increases 1 step.
DN  Decreases 1 step.

**Details**

This command is not available when Spurious Emission is set to On and when Gate View is set to Off.

**Example of Use**

To set the attenuator to 10 dB.

AT 10
AT 10DB
AT?
> 10
AUNITS/AUNITS?
Log Scale Unit

Function

This command sets the level display unit system at log scale.

Command

AUNITS unit

Query

AUNITS?

Response

unit

Parameter

<table>
<thead>
<tr>
<th>unit</th>
<th>Level display unit system at log scale</th>
</tr>
</thead>
<tbody>
<tr>
<td>DBM</td>
<td>dBm</td>
</tr>
<tr>
<td>DBUV</td>
<td>dBµV</td>
</tr>
<tr>
<td>DBMV</td>
<td>dBmV</td>
</tr>
<tr>
<td>DBUVE</td>
<td>dBmV (emf)</td>
</tr>
<tr>
<td>V</td>
<td>V</td>
</tr>
<tr>
<td>W</td>
<td>W</td>
</tr>
<tr>
<td>DBUVM</td>
<td>dBµV/m</td>
</tr>
</tbody>
</table>

Details

This command is not available during the Spectrum Emission Mask measurement or the Spurious Emission measurement.
If V (W) is selected and a measurement result is 99.999 GV (GW) or more, 99.999 GV (GW) or more is displayed.
When Signal Generator Control is On, the level display unit is fixed to dBm.

Example of Use

To set the level display unit system at log scale to V.
AUNITS V
AUNITS?
> V
BAND:MODE/BAND:MODE?
Resolution Bandwidth Normal/CISPR

Function
This command switches the Resolution Bandwidth mode. When Couple Time/Freq. Domain is set to Off, each parameter is specified in accordance with the already-specified frequency axis or time axis measurement.

Command
BAND:MODE mode

Query
BAND:MODE?

Response
mode

Parameter
mode
NORM RBW (in normal cases). This is the default value.
CISP CISPR RBW

Details
This function is available only when Option 016/116 is installed for MS2830A, MS2840A.
Not available when the Measure function is set to On.
Not available when the Gate View function is set to On.

Example of Use
To switch the mode to CISPR RBW.
BAND:MODE CISP
BAND:MODE?
> CISP
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BAPWRSTART/BAPWRSTART?
Burst Average Power Start Time

Function

This command sets the start position (time) of burst average power measurement.

Command

BAPWRSTART time

Query

BAPWRSTART?

Response

time

Suffix code  None. Value is returned in µs units.

Parameter

time  Start position (time)

Range  Within trace display range

Resolution  Formula for calculating the resolution is:
Sweep Time / (Trace Point – 1)
(Minimum value: 1 ns)

Suffix code  NS, US, MS, S
MS is used when omitted.

Example of Use

To set the start position (time) of burst average power measurement to 20 ms.
BAPWRSTART 20MS
BAPWRSTART?
> 20000.000
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BAPWRSTOP/BAPWRSTOP?
Burst Average Power Stop Time

Function

This command sets the stop position (time) of burst average power measurement.

Command

BAPWRSTOP time

Query

BAPWRSTOP?

Response
time

Suffix code None. Value is returned in µs units.

Parameter
time  Stop position (time)
Range  Within trace display range
Resolution  Formula for calculating the resolution is:
        Sweep Time / (Trace Point – 1)
        (Minimum value: 1 ns)
Suffix code  NS, US, MS, S
          MS is used when omitted.

Example of Use

To set the stop position (time) of burst average power measurement to 100 ms.
BAPWRSTOP 100MS
BAPWRSTART?
> 100000.000
BMD/BMD?
Storage Mode (Trace B)

Function

This command selects Trace B storage mode.

Command

BMD mode

Query

BMD?

Response

mode

Parameter

<table>
<thead>
<tr>
<th>mode</th>
<th>Storage mode</th>
</tr>
</thead>
<tbody>
<tr>
<td>0</td>
<td>Off</td>
</tr>
<tr>
<td>1</td>
<td>Max Hold</td>
</tr>
<tr>
<td>2</td>
<td>Average</td>
</tr>
<tr>
<td>3</td>
<td>Min Hold</td>
</tr>
<tr>
<td>6</td>
<td>Linear Average</td>
</tr>
</tbody>
</table>

Details

This command is not available during the Spectrum Emission Mask measurement or the Spurious Emission measurement.

Example of Use

To set Trace B storage mode to Average.

```
BMD 2
BMD?
> 2
```
BNDC/BNDC?

Band Select

Function

This command selects frequency band.

Note

This command is provided for backward compatibility. Setting except AUTO is not available.

Command

BNDC mode

Query

BNDC?

Response

mode

Parameter

mode

Frequency band
AUTO

Sets frequency band setting to Auto.

Example of Use

To set frequency band setting to Auto
BNDC AUTO
BNDC?
> AUTO
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**BNDSP/BNDSP?**

*Frequency Band Mode*

**Function**

This command sets the frequency band path. The frequency at which the path is switched to the preselector band or a path that does not pass through the preselector can be set with this function.

**Command**

BNDSP mode

**Query**

BNDSP?

**Response**

mode

**Parameter**

<table>
<thead>
<tr>
<th>mode</th>
<th>Frequency band mode</th>
</tr>
</thead>
<tbody>
<tr>
<td><strong>[MS269xA]</strong></td>
<td></td>
</tr>
<tr>
<td>NORMAL</td>
<td>Sets the frequency to be switched to the preselector band to 6.0 GHz.</td>
</tr>
<tr>
<td>OFF</td>
<td>Same as NORMAL</td>
</tr>
<tr>
<td>SPURIOUS</td>
<td>Sets the frequency to be switched to the preselector band to 3.0 GHz.</td>
</tr>
<tr>
<td>ON</td>
<td>Same as SPURIOUS</td>
</tr>
<tr>
<td><strong>[MS2830A-041/043/044/045], [MS2840A-041/044/046], [MS2850A]</strong></td>
<td></td>
</tr>
<tr>
<td>NORMAL</td>
<td>Sets the frequency to be switched to the preselector band to 4.0 GHz.</td>
</tr>
<tr>
<td>OFF</td>
<td>Same as NORMAL</td>
</tr>
<tr>
<td>SPURIOUS</td>
<td>Sets the frequency to be switched to the preselector band to 3.5 GHz.</td>
</tr>
<tr>
<td>ON</td>
<td>Same as SPURIOUS</td>
</tr>
</tbody>
</table>

**Details**

**[MS269xA]**

This command is not available when the Option 003/103 Preselector lower limit frequency extension option is not installed.

**[MS2830A], [MS2840A]**

This command is not available for Option 040 3.6 GHz Signal Analyzer.
Example of Use

To set the frequency to be switched to the preselector band to 6.0 GHz.
BNDSP NORMAL
BNDSP?
> NORMAL

**CAL**

Calibration Function

This command executes calibration.

**Command**

CAL mode

**Parameter**

<table>
<thead>
<tr>
<th>mode</th>
<th>Calibration mode</th>
</tr>
</thead>
<tbody>
<tr>
<td>ALL</td>
<td>Executes all calibrations.</td>
</tr>
<tr>
<td>LEVEL</td>
<td>Executes Level CAL.</td>
</tr>
<tr>
<td>LOLEAK_SUPPRESS</td>
<td>Executes local leak suppression.</td>
</tr>
<tr>
<td>BAND</td>
<td>Executes inband calibration.</td>
</tr>
</tbody>
</table>

Example of Use

To perform all calibrations.
CAL ALL
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CAL::RCL/CAL::RCL?
Adjust Reference Clock

Function
This command sets the adjustment value for the internal reference signal oscillator (Reference Clock).

Command
CAL::RCL integer

Query
CAL::RCL?

Response
integer

Parameter
integer  Adjustment value
  Range  0 to 1023 (MS2830A)
         0 to 4095 (MS2840A, MS2850A)
  Resolution  1

Example of Use
To set the adjustment value of the internal reference signal oscillator to 511
CAL::RCL 511
CAL::RCL?
> 511

CAL::RCL:PRES
Adjust Reference Clock Preset

Function
This command resets the adjustment value of the internal reference signal oscillator (Reference Clock).

Command
CAL::RCL:PRES

Example of Use
To reset the adjustment value of the internal reference signal oscillator.
CAL::RCL:PRES
CALC:MARK:AOFF

All Marker Off

Function

This command sets all the markers to Off.

Command

CALC:MARK:AOFF

Details

This command is not available in the following cases:
- During the Spectrum Emission Mask measurement.
- During the Spectrum Emission measurement.

Example of Use

To set all the markers to Off.

CALC:MARK:AOFF
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Couple Zone

Function
This command sets the Zone Width shared setting to On/Off.

Command
CALC:MARK:COUP:ZONE switch_com

Query
CALC:MARK:COUP:ZONE?

Response
switch_res

Parameter

Parameter | Description
--- | ---
switch_com | Zone Width shared setting On/Off
ON|1 | Sets the shared setting to On.
OFF|0 | Sets the shared setting to Off.
switch_res | Zone Width shared setting On/Off
1 | Shared setting is set to On.
0 | Shared setting is set to Off.

Details
This command allows the markers to share the Zone Width setting when set to On.
This command is not available in the following cases:
- In Time Domain mode.
- During the Spurious Emission measurement and when the Displayed Segment Mode is set to Auto.
- During the Spectrum Emission Mask measurement.

Example of Use
To set the Zone Width shared setting to On.
CALC:MARK:COUP:ZONE ON
CALC:MARK:COUP:ZONE?
> 1
CALC:MARK:FCO/CALC:MARK:FCO?

Frequency Counter State

Function

This command turns On/Off the frequency counter.

Command

CALC:MARK:FCO n,switch

Query

CALC:MARK:FCO? n

Parameter

<table>
<thead>
<tr>
<th>n</th>
<th>Marker Number</th>
</tr>
</thead>
<tbody>
<tr>
<td>1</td>
<td>Specifies marker 1</td>
</tr>
<tr>
<td>2</td>
<td>Specifies marker 2</td>
</tr>
<tr>
<td>3</td>
<td>Specifies marker 3</td>
</tr>
<tr>
<td>4</td>
<td>Specifies marker 4</td>
</tr>
<tr>
<td>5</td>
<td>Specifies marker 5</td>
</tr>
<tr>
<td>6</td>
<td>Specifies marker 6</td>
</tr>
<tr>
<td>7</td>
<td>Specifies marker 7</td>
</tr>
<tr>
<td>8</td>
<td>Specifies marker 8</td>
</tr>
<tr>
<td>9</td>
<td>Specifies marker 9</td>
</tr>
<tr>
<td>10</td>
<td>Specifies marker 10</td>
</tr>
</tbody>
</table>

switch

Frequency counter On/Off

ON|1 Sets marker n as the active marker and switches on the frequency counter function.
OFF|0 Switches off the frequency counter function of marker n.

Details

The frequency counter is available only for the active markers. Following execution of this command, the marker with the specified marker number becomes active.
The setting value is shared by all the markers.
This command is not available when gate sweep is On.
This command is not available when Marker Result is Integration or Density.
This command is not available when RBW is equal to or lower than 30 Hz.
This command is disabled during the Spurious Emission measurement.
This command is disabled during the Spectrum Emission Mask measurement.
This command is disabled when Noise Cancel is set to On.
This command is disabled when Signal Generator Control is set to On.
Example of Use

To set marker 1 as the active marker and switch on the frequency counter function.

```
CALC:MARK:FCO 1,ON
CALC:MARK:FCO? 1
> 1
```
Frequency Counter Gate Time

Function
This command sets the counter gate time for frequency counter.

Command
CALC:MARK:FCO:GAT n,time

Query
CALC:MARK:FCO:GAT? n

Response
time

Parameter
n
1 Specifications marker 1
2 Specifications marker 2
3 Specifications marker 3
4 Specifications marker 4
5 Specifications marker 5
6 Specifications marker 6
7 Specifications marker 7
8 Specifications marker 8
9 Specifications marker 9
10 Specifications marker 10

time
Center time of zone marker
Range 100 µs to 1 s
Resolution 50 µs
Suffix code NS,US,MS,S
S is used when the suffix code is omitted.

Details
This command is not available when frequency counter is set to Off.
The setting value is shared by all the markers.

Example of Use
To set the counter gate time for frequency counter to 100 ms.
CALC:MARK:FCO:GAT 1,100MS
CALC:MARK:FCO:GAT? 1
> 0.10000
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CALC:MARK:FCO:X?
Frequency Counter Query

Function

This command queries the measured value of the frequency counter.

Query

CALC:MARK:FCO:X? n

Response

freq

Parameter

<table>
<thead>
<tr>
<th>n</th>
<th>Marker Number</th>
</tr>
</thead>
<tbody>
<tr>
<td>1</td>
<td>Specifies marker 1</td>
</tr>
<tr>
<td>2</td>
<td>Specifies marker 2</td>
</tr>
<tr>
<td>3</td>
<td>Specifies marker 3</td>
</tr>
<tr>
<td>4</td>
<td>Specifies marker 4</td>
</tr>
<tr>
<td>5</td>
<td>Specifies marker 5</td>
</tr>
<tr>
<td>6</td>
<td>Specifies marker 6</td>
</tr>
<tr>
<td>7</td>
<td>Specifies marker 7</td>
</tr>
<tr>
<td>8</td>
<td>Specifies marker 8</td>
</tr>
<tr>
<td>9</td>
<td>Specifies marker 9</td>
</tr>
<tr>
<td>10</td>
<td>Specifies marker 10</td>
</tr>
</tbody>
</table>

freq  Center frequency of zone marker

Range  –99.999999999999 GHz to 99.999999999999 GHz

Resolution  0.001 Hz

Suffix code  None

–999999999999 is returned when no measurement is executed or when there is an error.

Details

A non-measurement value is returned when a marker number other than that of the active marker has been specified.
A non-measurement value is returned when the Marker Mode is either Fixed or Off.

Example of Use

To query the frequency counter value of marker 1.

CALC:MARK:FCO:X? 1

> 100000000.00
CALC:MARK:MAX:POW

Power Peak Search

Function

This command moves the active marker to the position where the peak power of the zone width of the active marker becomes maximum in the measurement band.

Command

CALC:MARK:MAX:POW n

Parameter

<table>
<thead>
<tr>
<th>n</th>
<th>Marker No</th>
</tr>
</thead>
<tbody>
<tr>
<td>1</td>
<td>Specifies marker 1</td>
</tr>
<tr>
<td>2</td>
<td>Specifies marker 2</td>
</tr>
<tr>
<td>3</td>
<td>Specifies marker 3</td>
</tr>
<tr>
<td>4</td>
<td>Specifies marker 4</td>
</tr>
<tr>
<td>5</td>
<td>Specifies marker 5</td>
</tr>
<tr>
<td>6</td>
<td>Specifies marker 6</td>
</tr>
<tr>
<td>7</td>
<td>Specifies marker 7</td>
</tr>
<tr>
<td>8</td>
<td>Specifies marker 8</td>
</tr>
<tr>
<td>9</td>
<td>Specifies marker 9</td>
</tr>
<tr>
<td>10</td>
<td>Specifies marker 10</td>
</tr>
</tbody>
</table>

Details

This cannot be executed under the following conditions:
- In Time Domain
- When Scale Mode is Linear
- When active trace is Blank
- When Spurious Emission measurement is On and Displayed Segment Mode is Auto
- When Spectrum Emission Mask measurement is On

Example of Use

To move marker 1 to position where peak power of zone width is maximum value.
CALC:MARK:MAX:POW 1
CALC:MARK:MAX:POW:NEXT
Next Power Peak Search

Function

This command searches for the next largest peak power in the zone width compared to the total power of the zone width of the active marker in the measurement band and moves the active marker.

Command

CALC:MARK:MAX:POW:NEXT n

Parameter

<table>
<thead>
<tr>
<th>n</th>
<th>Marker Number</th>
</tr>
</thead>
<tbody>
<tr>
<td>1</td>
<td>Specifies marker 1</td>
</tr>
<tr>
<td>2</td>
<td>Specifies marker 2</td>
</tr>
<tr>
<td>3</td>
<td>Specifies marker 3</td>
</tr>
<tr>
<td>4</td>
<td>Specifies marker 4</td>
</tr>
<tr>
<td>5</td>
<td>Specifies marker 5</td>
</tr>
<tr>
<td>6</td>
<td>Specifies marker 6</td>
</tr>
<tr>
<td>7</td>
<td>Specifies marker 7</td>
</tr>
<tr>
<td>8</td>
<td>Specifies marker 8</td>
</tr>
<tr>
<td>9</td>
<td>Specifies marker 9</td>
</tr>
<tr>
<td>10</td>
<td>Specifies marker 10</td>
</tr>
</tbody>
</table>

Details

This cannot be executed under the following conditions:

- In Time Domain
- When Scale Mode is Linear
- When active trace is Blank
- When Spurious Emission measurement is On and Displayed Segment Mode is Auto
- When Spectrum Emission Mask measurement is On

Example of Use

To move marker 1 to position of zone width with next largest peak power.

CALC:MARK:MAX:POW:NEXT 1

Search Peaks Number

Function

This command sets the search number when Search Peaks Sort Y/X is executed.

Command

CALC:MARK:PEAK:SORT:COUN integer

Query

CALC:MARK:PEAK:SORT:COUN?

Response

integer

Parameter

<table>
<thead>
<tr>
<th>integer</th>
<th>Search number</th>
</tr>
</thead>
<tbody>
<tr>
<td>Range</td>
<td>1 to 10</td>
</tr>
<tr>
<td>Resolution</td>
<td>1</td>
</tr>
<tr>
<td>Default</td>
<td>10</td>
</tr>
</tbody>
</table>

Details

This command is not available in the following cases:
- During the Spurious Emission measurement and when Displayed Segment Mode is set to Auto.
- During the Spectrum Emission Mask measurement.

Example of Use

To set the search number to 6.
CALC:MARK:PEAK:SORT:COUN 6
CALC:MARK:PEAK:SORT:COUN?
> 6
Chapter 4  Native Device Message Details

CALC:MARK:PEAK:SORT:X
Search Peaks Sort X

Function

This command sorts as many markers as the number set in Search Peaks Number by frequency (time) on the trace.

Command

CALC:MARK:PEAK:SORT:X

Details

This command is not available in the following cases:
• During the Spurious Emission measurement.
• When Displayed Segment Mode is set to Auto.
• During the Spectrum Emission Mask measurement.
• When the active trace is set to Blank.

Example of Use

To sort the markers by frequency.
CALC:MARK:PEAK:SORT:X

CALC:MARK:PEAK:SORT:Y
Search Peaks Sort Y

Function

This command sorts as many markers as the number set in Search Peaks Number by level on the trace.

Command

CALC:MARK:PEAK:SORT:Y

Details

This command is not available in the following cases:
• During the Spurious Emission measurement.
• When Displayed Segment Mode is set to Auto.
• During the Spectrum Emission Mask measurement.
• When the active trace is set to Blank.

Example of Use

To sort the markers by level.
CALC:MARK:PEAK:SORT:Y
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CALC:MARK:READ?
Marker Readout Query

Function

This command queries all marker values.

Query

CALC:MARK:READ?

Response

freq_1,power_1,freq_2,power_2,...,
freq_10,power_10
(in frequency domain)
time_1,power_1,time_2,power_2,...,
time_10,power_10
(in time domain)

Parameter

freq_n  Frequency of marker n
No suffix code, in Hz units, resolution: 0.01 Hz
Returns “–999999999999” when no measurement is performed, an
error occurs, or the marker is off.

power_n  Level of Marker n
(When marker level display units are dB-system units.)
No suffix code, in the unit specified in Scale Unit, resolution: 0.001 dB
Returns –999.0 when no measurement is performed, an error
occurs, or the marker is Off.
(When marker level display units are V-system units.)
No suffix code, in V-system units, resolution: 0.01 pV
Returns –999.0 when no measurement is performed, an error
occurs, or the marker is Off.
(When marker level display units are W-system units.)
No suffix code, in W-system units, resolution: 0.01 yW
Returns –999.0 when no measurement is performed, an error
occurs, or the marker is Off.
(When marker level display units are X multiplying-system units.)
No suffix code, resolution: 0.0001, returns 1 at the same
magnification.
Returns –999.0 when no measurement is performed, an error
occurs, or the marker is Off.
**Chapter 4  Native Device Message Details**

**time_n**

Time of marker n

No suffix code, in s units, resolution: 0.1 ns

Returns –999999999999 when no measurement is performed, an error occurs, or the marker is off.

**Details**

This command is not available during the Spurious Emission measurement and when Displayed Segment Mode is set to Auto.

**Example of Use**

To query all marker values (frequency domain)

```
CALC:MARK:READ?
```

```
1000000.00,-15.321,1100000.00,-23.000,1200000.00,-15.321,
1300000.00,-12.680,1400000.00,-5.622,1500000.00,-65.056,
1600000.00,-26.534,1700000.00,-34.264,1800000.00,-35.644,
-999999999999,-999.0
```
CALC:MARK:REF/CALC:MARK:REF?

**Relative To**

**Function**

This command sets the reference marker when Marker Mode is set to Delta.

**Command**

CALC:MARK:REF marker, integer

**Query**

CALC:MARK:REF? marker

**Response**

integer

**Parameter**

<table>
<thead>
<tr>
<th>marker</th>
<th>Marker Number to set</th>
</tr>
</thead>
<tbody>
<tr>
<td>1</td>
<td>Marker1</td>
</tr>
<tr>
<td>2</td>
<td>Marker2</td>
</tr>
<tr>
<td>3</td>
<td>Marker3</td>
</tr>
<tr>
<td>4</td>
<td>Marker4</td>
</tr>
<tr>
<td>5</td>
<td>Marker5</td>
</tr>
<tr>
<td>6</td>
<td>Marker6</td>
</tr>
<tr>
<td>7</td>
<td>Marker7</td>
</tr>
<tr>
<td>8</td>
<td>Marker8</td>
</tr>
<tr>
<td>9</td>
<td>Marker9</td>
</tr>
<tr>
<td>10</td>
<td>Marker10</td>
</tr>
</tbody>
</table>

<table>
<thead>
<tr>
<th>integer</th>
<th>Marker Number for reference</th>
</tr>
</thead>
<tbody>
<tr>
<td>1</td>
<td>Marker1</td>
</tr>
<tr>
<td>2</td>
<td>Marker2</td>
</tr>
<tr>
<td>3</td>
<td>Marker3</td>
</tr>
<tr>
<td>4</td>
<td>Marker4</td>
</tr>
<tr>
<td>5</td>
<td>Marker5</td>
</tr>
<tr>
<td>6</td>
<td>Marker6</td>
</tr>
<tr>
<td>7</td>
<td>Marker7</td>
</tr>
<tr>
<td>8</td>
<td>Marker8</td>
</tr>
<tr>
<td>9</td>
<td>Marker9</td>
</tr>
<tr>
<td>10</td>
<td>Marker10</td>
</tr>
</tbody>
</table>

When omitted: Active marker
**Chapter 4  Native Device Message Details**

Details

The selected marker cannot be set as the reference marker.
This command is not available in the following cases:
- During the Spurious Emission measurement.
- During the Spectrum Emission Mask measurement.
- During the Spurious Emission measurement and when Displayed Segment Mode is set to Auto.

Example of Use

To set the reference marker of 2 to 4.

```
CALC:MARK:REF 2,4
CALC:MARK:REF? 2
> 4
```
CALC:MARK:SLIN/CALC:MARK:SLIN?

Spot Line

Function

This command displays/hides the marker line in the spot marker.

Command

CALC:MARK:SLIN switch_com

Query

CALC:MARK:SLIN?

Response

switch_res

Parameter

<table>
<thead>
<tr>
<th>switch_com</th>
<th>Marker line display On/Off</th>
</tr>
</thead>
<tbody>
<tr>
<td>ON</td>
<td>1</td>
</tr>
<tr>
<td>OFF</td>
<td>0</td>
</tr>
</tbody>
</table>

<table>
<thead>
<tr>
<th>switch_res</th>
<th>Marker line display On/Off</th>
</tr>
</thead>
<tbody>
<tr>
<td>1</td>
<td>Marker line is displayed.</td>
</tr>
<tr>
<td>0</td>
<td>Marker line is hidden.</td>
</tr>
</tbody>
</table>

Details

This command is not available during the Spurious Emission measurement and when Displayed Segment Mode is set to Auto. This command is disabled during the Spectrum Emission Mask measurement.

Example of Use

To display the marker line.
CALC:MARK:SLIN ON
CALC:MARK:SLIN?
> 1
CALC:MARK:TABL/CALC:MARK:TABL?

Marker List

Function

This command sets the marker list to On/Off.

Command

CALC:MARK:TABL switch_com

Query

CALC:MARK:TABL?

Response

switch_res

Parameter

switch_com  Marker list On/Off
  ON|1  Sets the marker list to On.
  OFF|0  Sets the marker list to Off.

switch_res  Marker list display On/Off
  1  Marker list is On.
  0  Marker list is Off.

Details

This command is not available during the Spectrum Emission Mask.

Example of Use

To set the marker list display to On.
CALC:MARK:TABLE ON
CALC:MARK:TABLE?
> 1
CALC:MARK:TRCK/CALC:MARK:TRCK?
Marker Tracking

Function
This command sets the Marker tracking function to On/Off.

Command
CALC:MARK:TRCK switch_com

Query
CALC:MARK:TRCK?

Response
switch_res

Parameter

<table>
<thead>
<tr>
<th>switch_com</th>
<th></th>
</tr>
</thead>
</table>
| ON|1      | Marker tracking function On/Off
| OFF|0      | Marker tracking Off

<table>
<thead>
<tr>
<th>switch_res</th>
<th></th>
</tr>
</thead>
<tbody>
<tr>
<td>1</td>
<td>Marker tracking function On</td>
</tr>
<tr>
<td>0</td>
<td>Marker tracking function Off</td>
</tr>
</tbody>
</table>

Details
Conducts sweep after adjusting the center frequency of trace to that of the active marker frequency.

Example of Use
To enable Marker tracking
CALC:MARK:TRCK ON
CALC:MARK:TRCK?
> 1
### CALC:MARK:WIDT:TYPE/CALC:MARK:WIDT:TYPE?

**Zone Width Type**

**Function**

This command sets the zone width type of the marker.

**Command**

```
CALC:MARK:WIDT:TYPE n,zone_type
```

**Query**

```
CALC:MARK:WIDT:TYPE? n
```

**Parameter**

<table>
<thead>
<tr>
<th>n</th>
<th>Marker number</th>
</tr>
</thead>
<tbody>
<tr>
<td>1</td>
<td>Marker 1</td>
</tr>
<tr>
<td>2</td>
<td>Marker 2</td>
</tr>
<tr>
<td>3</td>
<td>Marker 3</td>
</tr>
<tr>
<td>4</td>
<td>Marker 4</td>
</tr>
<tr>
<td>5</td>
<td>Marker 5</td>
</tr>
<tr>
<td>6</td>
<td>Marker 6</td>
</tr>
<tr>
<td>7</td>
<td>Marker 7</td>
</tr>
<tr>
<td>8</td>
<td>Marker 8</td>
</tr>
<tr>
<td>9</td>
<td>Marker 9</td>
</tr>
<tr>
<td>10</td>
<td>Marker 10</td>
</tr>
</tbody>
</table>

When omitted: Marker 1

<table>
<thead>
<tr>
<th>zone_type</th>
<th>Zone width type</th>
</tr>
</thead>
<tbody>
<tr>
<td>ZONE</td>
<td>Zone marker</td>
</tr>
<tr>
<td>SPOT</td>
<td>Spot marker</td>
</tr>
</tbody>
</table>

**Details**

This command is available when Marker Result is set to Peak. When Marker Result is set to Integration or Density, Zone width type is fixed to Zone, Spot cannot be selected.

This command is not available in the following cases:

- In Time Domain mode
- During the Spurious Emission measurement and when Displayed Segment Mode is set to Auto.
- During the Spectrum Emission Mask measurement.

**Example of Use**

To set the zone width type of Marker 1 to the zone marker.

```plaintext
CALC:MARK:WIDT:TYPE 1,ZONE
CALC:MARK:WIDT:TYPE? 1
> ZONE
```
Zone Marker Relative Frequency (Time)

Function

This command moves the center of the zone marker to the frequency (time), specified by relative value. This queries the center frequency in relative value.

Command

CALC:MARK:X:DELT marker,freq
CALC:MARK:X:DELT marker,time

Query

CALC:MARK:X:DELT? marker

Response

freq
time

Parameter

<table>
<thead>
<tr>
<th>marker</th>
<th>Marker Number</th>
</tr>
</thead>
<tbody>
<tr>
<td>1</td>
<td>Specifies marker 1</td>
</tr>
<tr>
<td>2</td>
<td>Specifies marker 2</td>
</tr>
<tr>
<td>3</td>
<td>Specifies marker 3</td>
</tr>
<tr>
<td>4</td>
<td>Specifies marker 4</td>
</tr>
<tr>
<td>5</td>
<td>Specifies marker 5</td>
</tr>
<tr>
<td>6</td>
<td>Specifies marker 6</td>
</tr>
<tr>
<td>7</td>
<td>Specifies marker 7</td>
</tr>
<tr>
<td>8</td>
<td>Specifies marker 8</td>
</tr>
<tr>
<td>9</td>
<td>Specifies marker 9</td>
</tr>
<tr>
<td>10</td>
<td>Specifies marker 10</td>
</tr>
</tbody>
</table>

freq  Relative center frequency of zone marker

Range Absolute frequency range – Reference marker center frequency
Resolution 0.01 Hz
Suffix code HZ, KHZ, KZ, MHZ, MZ, GHZ, GZ
Hz is used when omitted.
Default 0 Hz
time  Relative center time of zone marker

Range Absolute time range – Reference marker center time
Resolution 1 ns
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Suffix code      NS, US, MS, S
                S is used when the suffix code is omitted.
Default         0 s

Details

This command is not available during Spurious Emission measurement and when Displayed Segment Mode is Auto.

Not available during Spectrum Emission Mask measurement.

Not available when Marker Mode is set other than Delta.

Example of Use

When Frequency Span is 0 Hz, and Active Marker is Marker 2.
To move the center of Marker 1 zone marker to +100 MHz of Marker 2 (reference marker).
CALC:MARK1:REF 2
CALC:MARK:X:DELT 1,100MHZ
CALC:MARK:X:DELT? 1
> 100000000.00

When Frequency Span is 0 Hz, and Active Marker is Marker 2.
To move the center of Marker 1 zone marker to 15 ms of Marker 2 (reference marker).
CALC:MARK1:REF 2
CALC:MARK:X:DELT 1,15MS
CALC:MARK:X:DELT? 1
> 0.015000000
**CALC:MARK:Y:DELT?**

Marker Relative Level Query

**Function**

This command queries the marker level in relative value.

**Query**

`CALC:MARK:Y:DELT? marker`

**Response**

`level`

**Parameter**

- **marker**: Marker Number
  - 1: Specifies marker 1
  - 2: Specifies marker 2
  - 3: Specifies marker 3
  - 4: Specifies marker 4
  - 5: Specifies marker 5
  - 6: Specifies marker 6
  - 7: Specifies marker 7
  - 8: Specifies marker 8
  - 9: Specifies marker 9
  - 10: Specifies marker 10

- **level**: Relative level of zone marker
  - (When Scale Mode is Log)
    - No suffix code, in dB units, resolution: 0.001 dB
    - –999.0 is returned at no measurement or error
  - (When Scale Mode is Lin)
    - No suffix code, no units, range 0.0000 to 10000, 0.0001 resolution
    - –999.0 is returned at no measurement or error

**Details**

This command is not available during Spurious Emission measurement and when Displayed Segment Mode is Auto.

Not available during Spectrum Emission Mask measurement.

Not available when Marker Mode is set other than Delta.

**Example of Use**

To query the relative value result of marker 1.

```
CALC:MARK:Y:DELT? 1
>10.00
```
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CALC:SPUR:CORR:COMM
Use Common Correction Table

Function

This command uses the common correction data set in Cal as Correction Data.

Command

CALC:SPUR:CORR:COMM integer

Parameter

integer  Segment number
Range     1 to 20
Resolution 1

Example of Use

To use the common correction data set in Cal as Correction Data.
CALC:SPUR:CORR:COMM 1
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CALC:SPUR:CORR:REC
Recall Correction Table

Function

This command selects the correction table to use in Segment.

Command

CALC:SPUR:CORR:REC integer, filename, device

Parameter

<table>
<thead>
<tr>
<th>Parameter</th>
<th>Description</th>
</tr>
</thead>
<tbody>
<tr>
<td>integer</td>
<td>Segment number</td>
</tr>
<tr>
<td></td>
<td>Range: 1 to 20</td>
</tr>
<tr>
<td>Resolution</td>
<td>1</td>
</tr>
<tr>
<td>filename</td>
<td>Name of File</td>
</tr>
<tr>
<td></td>
<td>Character string within 32 characters enclosed by double quotation marks (&quot; &quot;) or single quotation marks (') (Not including an extension). The following characters are not available: \ / : * ? &quot; &quot; ' ' &lt; &gt;</td>
</tr>
<tr>
<td>device</td>
<td>Name of Drive</td>
</tr>
<tr>
<td></td>
<td>A, B, D, E, F, ...</td>
</tr>
<tr>
<td></td>
<td>D drive is used when omitted.</td>
</tr>
</tbody>
</table>

Example of Use

To select the correction table of a file named TEST in the internal HDD or SSD.

CALC:SPUR:CORR:REC 1,"TEST", D

Spurious Emission Limit Start Level

Function

This command sets the absolute level limit of the start frequency in each segment for the Spurious Emission measurement.

Command

CALC:SPUR:LIM:ABS:DATA
ampl_1,ampl_2,ampl_3,ampl_4,ampl_5,ampl_6,ampl_7,ampl_8,
ampl_9,ampl_10,ampl_11,ampl_12,ampl_13,ampl_14,ampl_15,a
mpl_16,ampl_17,ampl_18,ampl_19,ampl_20

Query

CALC:SPUR:LIM:ABS:DATA?

Response

ampl_1,ampl_2,ampl_3,ampl_4,ampl_5,ampl_6,ampl_7,ampl_8,
ampl_9,ampl_10,ampl_11,ampl_12,ampl_13,ampl_14,ampl_15,a
mpl_16,ampl_17,ampl_18,ampl_19,ampl_20

Value is returned in dBm units, without suffix code.

Parameter

ampl_n  Absolute level limit of start frequency of
         Segment n

Range    -200 dBm to 50 dBm
Resolution  0.01 dB
Suffix code DBM,DM

Example of Use

To set the absolute level limit of the start frequency of each segment.
CALC:SPUR:LIM:ABS:DATA
-13DBM,-13DBM,-13DBM,-13DBM,-13DBM,-10DBM,-10DBM,
-13DBM,-13DBM,-13DBM,-13DBM,-13DBM,-10DBM,-10DBM,
-13DBM,-13DBM,-13DBM,-13DBM
CALC:SPUR:LIM:ABS:DATA?
>
-13.00,-13.00,-13.00,-13.00,-13.00,-13.00,-10.00,-10.00,
-13.00,-13.00,-13.00,-13.00,-13.00,-13.00,-10.00,-10.00,
-13.00,-13.00,-13.00,-13.00

Spurious Emission Limit Stop Level

Function

This command sets the absolute level limit of the stop frequency of each segment for the Spurious Emission measurement.

Command

ampl_1,ampl_2,ampl_3,ampl_4,ampl_5,ampl_6,ampl_7,ampl_8,
ampl_9,ampl_10,ampl_11,ampl_12,ampl_13,ampl_14,ampl_15,a
mpl_16,ampl_17,ampl_18,ampl_19,ampl_20

Query

CALC:SPUR:LIM:ABS:DATA:STOP?

Response

ampl_1,ampl_2,ampl_3,ampl_4,ampl_5,ampl_6,ampl_7,ampl_8,
ampl_9,ampl_10,ampl_11,ampl_12,ampl_13,ampl_14,ampl_15,a
mpl_16,ampl_17,ampl_18,ampl_19,ampl_20

Value is returned in dBm units, without suffix code.

Parameter

ampl_n Absolute level limit of stop frequency in Segment n
Range –200 dBm to 50 dBm
Resolution 0.01 dB
Suffix code DBM,DM

Example of Use

To set the absolute level limit of the stop frequency in each segment.
-13,-13,-13,-13,-13,-13,-13,-13,-13,-13,-13,-13,-13,-13,-13,-13
CALC:SPUR:LIM:ABS:DATA:STOP?
>
-13.00,-13.00,-13.00,-13.00,-13.00,-13.00,-13.00,-13.00,-13.00,-13.00,-13.00,-13.00,-13.00,-13.00,-13.00
Spurious Emission Limit Stop Level Auto/Manual

Function

This command sets the absolute level limit of the stop frequency in each segment for the Spurious Emission measurement to Auto/Manual.

Command

switch_1_com,switch_2_com,switch_3_com,switch_4_com,switch_5_com,switch_6_com,switch_7_com,switch_8_com,switch_9_com,switch_10_com,switch_11_com,switch_12_com,switch_13_com,switch_14_com,switch_15_com,switch_16_com,switch_17_com,switch_18_com,switch_19_com,switch_20_com

Query


Response


Parameter

<table>
<thead>
<tr>
<th>switch_n_com</th>
<th>Stop frequency of Segment n Auto/Manual</th>
</tr>
</thead>
<tbody>
<tr>
<td>ON</td>
<td>1</td>
</tr>
<tr>
<td>OFF</td>
<td>0</td>
</tr>
</tbody>
</table>

<table>
<thead>
<tr>
<th>switch_n_res</th>
<th>Stop frequency of Segment n Auto/Manual</th>
</tr>
</thead>
<tbody>
<tr>
<td>1</td>
<td>Stop frequency is set to Auto.</td>
</tr>
<tr>
<td>0</td>
<td>Stop frequency is set to Manual.</td>
</tr>
</tbody>
</table>

Details

When set to On, the same as the value set in Limit Start Level is set to Limit Stop Level.
Example of Use

To set the absolute level limit of the stop frequency in each segment to Auto/Manual.

```
ON, ON, ON, ON, OFF, OFF, OFF, ON, ON, ON, ON, ON, ON, ON, ON, ON, ON, ON, ON, ON, ON, ON, ON, ON, ON
> 1,1,1,1,0,0,0,1,1,1,1,1,1,1,1,1,1,1,1,1
```

CHPWRCENTER/CHPWRCENTER?

Channel Power Channel Center Frequency

**Function**

This command sets the center frequency for Channel Power measurement.

**Command**

CHPWRCENTER freq

**Query**

CHPWRCENTER?

**Response**

freq

Returns a value in Hz units, without a suffix code.

**Parameter**

freq Channel center frequency

Range (Start Frequency) to (Stop Frequency)

Resolution 1 Hz

Suffix Code HZ,KHZ,KZ, MHZ, MZ, GHZ, GZ

Hz is used when omitted.

**Example of Use**

To set the channel power center frequency to 6.01 GHz.

CHPWRCENTER 6.01GHZ
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**CHPWRFLTRTYP/CHPWRFLTRTYP?**
Channel Power Filter Type

**Function**
This command sets filter type for Channel Power measurement.

**Command**
CHPWRFLTRTYP filter

**Query**
CHPWRFLTRTYP?

**Response**
filter

**Parameter**

<table>
<thead>
<tr>
<th>filter</th>
<th>Filter type</th>
</tr>
</thead>
<tbody>
<tr>
<td>RECT</td>
<td>Rect. filter</td>
</tr>
<tr>
<td>NYQUIST</td>
<td>Nyquist filter</td>
</tr>
<tr>
<td>ROOTNYQUIST</td>
<td>Root Nyquist filter</td>
</tr>
</tbody>
</table>

**Example of Use**
To set the filter type to Nyquist.
CHPWRFLTRTYP NYQUIST
**CHPWRROF/CHPWRROF?**

**Channel Power Rolloff Factor**

**Function**

This command sets filter rolloff ratio for Channel Power measurement.

**Command**

CHPWRROF factor

**Query**

CHPWRROF?

**Response**

factor

**Parameter**

<table>
<thead>
<tr>
<th>factor</th>
<th>Rolloff ratio</th>
</tr>
</thead>
<tbody>
<tr>
<td>Range</td>
<td>0.01 to 1</td>
</tr>
<tr>
<td>Resolution</td>
<td>0.01</td>
</tr>
</tbody>
</table>

**Details**

This command is not available when the channel power filter type for channel power measurement is set to either of the following:

- Nyquist
- Root Nyquist

**Example of Use**

To set the rolloff ratio to 0.62.

CHPWRROF 0.62
CHPWRWIDTH/CHPWRWIDTH?
Channel Power Channel Bandwidth

Function

This command sets the channel bandwidth for Channel Power measurement.

Command

CHPWRWIDTH freq

Query

CHPWRWIDTH?

Response

freq
Returns a value in Hz units, without a suffix code.

Parameter

freq Channel bandwidth
Range 1 Hz to 1 GHz
Resolution 1 Hz
Suffix Code HZ, KHZ, KZ, MHZ, MZ, GHZ, GZ
Hz is used when omitted.

Example of Use

To set the channel bandwidth to 1 MHz.
CHPWRWIDTH 1MHZ
**CMD/CMD?**  
Storage Mode (Trace C)

**Function**  
This command selects the storage mode of Trace C.

**Command**  
CMD mode

**Query**  
CMD?

**Response**  
mode

**Parameter**

<table>
<thead>
<tr>
<th>mode</th>
<th>Storage mode</th>
</tr>
</thead>
<tbody>
<tr>
<td>0</td>
<td>Off</td>
</tr>
<tr>
<td>1</td>
<td>Max Hold</td>
</tr>
<tr>
<td>2</td>
<td>Average</td>
</tr>
<tr>
<td>3</td>
<td>Min Hold</td>
</tr>
<tr>
<td>6</td>
<td>Linear Average</td>
</tr>
</tbody>
</table>

**Details**  
This command is not available during the Spectrum Emission Mask measurement or the Spurious Emission measurement.

**Example of Use**  
To set Trace C storage mode to Average.  
CMD 2  
CMD?  
> 2
CMK?
Marker Position Query

Function

This command queries the marker position using the displayed point from the screen left edge.

Query

CMK? marker

Response

point

Parameter

point  Marker position (Number of displayed points from the screen left edge)
Range   0 to 10, 20, 40, 50, 100, 200, 250, 400, 500, 1000, 2000, 5000, 10000, 30000
        (The upper limit value varies according to the number of trace displayed points.)
Resolution  1

marker  Marker type
1       Marker1
2       Marker2
3       Marker3
4       Marker4
5       Marker5
6       Marker6
7       Marker7
8       Marker8
9       Marker9
10      Marker10

When omitted  Active marker

Details

*** is returned when the Marker Mode is Off.
This command is not available during the Spurious Emission measurement and when Displayed Segment Mode is set to Auto.

Example of Use

To query the active marker position.
CMK?
> 123
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**CNF/CNF?**

Center Frequency

Function

This command sets the center frequency.

Command

**CNF freq**

Query

**CNF?**

Response

**freq**

No suffix code. Value is returned in Hz units.

Parameter

<table>
<thead>
<tr>
<th>freq</th>
<th>Center frequency</th>
</tr>
</thead>
<tbody>
<tr>
<td><strong>Range</strong></td>
<td><strong>[MS269xA]</strong></td>
</tr>
<tr>
<td></td>
<td>–100 MHz to 6.05 GHz (MS2690A)</td>
</tr>
<tr>
<td></td>
<td>–100 MHz to 13.6 GHz (MS2691A)</td>
</tr>
<tr>
<td></td>
<td>–100 MHz to 26.6 GHz (MS2692A)</td>
</tr>
<tr>
<td><strong>[MS2830A]</strong></td>
<td>–100 MHz to 3.7 GHz (Option 040)</td>
</tr>
<tr>
<td></td>
<td>–100 MHz to 6.1 GHz (Option 041)</td>
</tr>
<tr>
<td></td>
<td>–100 MHz to 13.6 GHz (Option 043)</td>
</tr>
<tr>
<td></td>
<td>–100 MHz to 26.6 GHz (Option 044)</td>
</tr>
<tr>
<td></td>
<td>–100 MHz to 43.1 GHz (Option 045)</td>
</tr>
<tr>
<td><strong>[MS2840A]</strong></td>
<td>–100 MHz to 3.7 GHz (Option 040)</td>
</tr>
<tr>
<td></td>
<td>–100 MHz to 6.1 GHz (Option 041)</td>
</tr>
<tr>
<td></td>
<td>–100 MHz to 27 GHz (Option 044)</td>
</tr>
<tr>
<td></td>
<td>–100 MHz to 45 GHz (Option 046)</td>
</tr>
<tr>
<td><strong>[MS2850A]</strong></td>
<td>–100 MHz to 32.5 GHz (Option 047)</td>
</tr>
<tr>
<td></td>
<td>–100 MHz to 45 GHz (Option 046)</td>
</tr>
<tr>
<td><strong>Resolution</strong></td>
<td>1 Hz</td>
</tr>
<tr>
<td><strong>Suffix code</strong></td>
<td>HZ, KHZ, KZ, MHZ, MZ, GHZ, GZ</td>
</tr>
<tr>
<td>Hz is used when omitted.</td>
<td></td>
</tr>
</tbody>
</table>

Details

This command is not available during the Spurious Emission measurement.
When Signal Generator Control is On, the center frequency range
depends on the frequency range of Signal Generator.

Example of Use

To set the center frequency to 123.456 kHz.

- CNF 123456
- CNF 123456HZ
- CNF 123.456KHZ
- CNF 0.123456MHZ
- CNF 0.000123456GHZ
CNF?
> 123456
CNVLOSS/CNVLOSS?
External Mixer Conversion Loss

Function
This command sets the external mixer's conversion loss.

Command

CNVLOSS power

Query

CNVLOSS?

Response

power

Parameter

<table>
<thead>
<tr>
<th>power</th>
<th>External mixer's conversion loss</th>
</tr>
</thead>
<tbody>
<tr>
<td>Range</td>
<td>0.00 to 99.99 dB</td>
</tr>
<tr>
<td>Resolution</td>
<td>0.01 dB</td>
</tr>
<tr>
<td>Suffix code</td>
<td>None. Value is returned in dB units.</td>
</tr>
<tr>
<td>Default</td>
<td>15.00 dB</td>
</tr>
</tbody>
</table>

Details
This function is available when Option 044/045 is installed for MS2830A.
This function is available when Option 044/046 is installed for MS2840A.
This function is readily available for MS2850A.
A value is held per one external mixer's band.

Example of Use
To set the external mixer's conversion loss to 10.00 dB.
CNVLOSS 10.00
CNVLOSS?
> 10.00
**CONF:SAN**

**Measurement Off**

**Function**

This command disables currently running Measurement function. No operation is made if no Measurement function is running.

**Command**

CONF: SAN

**Example of Use**

To disable the currently running Measure function.

CONF: SAN

---

**CONF:SEM**

**Spectrum Emission Mask Configure**

**Function**

This command sets Spectrum Emission Mask measurement to On.

**Command**

CONF: SEM

**Details**

No measurement is performed.

**Example of Use**

To set SEM measurement to On.

CONF: SEM
**CONF:SPUR**

**Spurious Emission Configure**

**Function**

This command sets the Spurious Emission measurement to On.

**Command**

CONF:SPUR

**Details**

No measurement is performed. When Spurious Emission measurement is set to On, the active trace is set to A.

**Example of Use**

To set the Spurious Emission measurement to On.

CONF:SPUR

---

**CONT S**

**Continuous Sweep**

**Function**

This command sets the sweep mode to Continuous and starts continuous sweep.

**Command**

CONT S

**Example of Use**

To start continuous sweep.

CONT S
Chapter 4  Native Device Message Details

DET/DET?
Detection Mode

Function

This command selects the waveform pattern detection mode. When Coupl Time/Frequency Domain is set to Off, each parameter is specified in accordance with the already-specified frequency axis or time axis measurement.

Command

DET mode

Query

DET?

Response

mode

Parameter

mode                  Detection mode selection
NRM                   Simultaneous positive and negative peak detection
POS                   Positive peak detection
NEG                   Negative peak detection
SMP                   Sample detection
RMS                   RMS detection

This following functions are available when MS2830A-016/116 or MS2840A-016/116 is installed.
QPE                   QP detection
CAV                   CISPR Average detection
CRMS                  RMS Average detection

Details

The set detection mode is applied to all traces.
This command is not available during the Spectrum Emission Mask measurement or the Spurious Emission measurement.
QPE, CAV, or CRMS cannot be set when the Measure function is set to On.
QPE, CAV, or CRMS cannot be set when the Gate View function is set to On.
When QPEak, CAVerage, and CRMS are set, RBW MODE changes from Normal to CISPR.
Example of Use

To set the detection mode to positive peak.

```
DET POS
DET?
> POS
```

**DISP:SEM:RES:TYPE/DISP:SEM:RES:TYPE?**

Spectrum Emission Mask Result Type

**Function**

This command switches the type of the result display for Spectrum Emission Mask measurement.

**Command**

```
DISP:SEM:RES:TYPE type
```

**Query**

```
DISP:SEM:RES:TYPE?
```

**Response**

```
type
```

**Parameter**

```
type
PEAK
MARG
```

Type of result display

Displays the peak

Displays the margin to the specification line

**Example of Use**

To set the type of the result display to the peak.

```
DISP:SEM:RES:TYPE PEAK
DISP:SEM:RES:TYPE?
> PEAK
```
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**DISP:SPUR:SEGM/DISP:SPUR:SEGM?**

Displayed Segment

**Function**

This command specifies the segment to display the trace data in.

**Command**

`DISP:SPUR:SEGM integer`

**Query**

`DISP:SPUR:SEGM?`

**Response**

`integer`

**Parameter**

<table>
<thead>
<tr>
<th>integer</th>
<th>Segment number</th>
</tr>
</thead>
<tbody>
<tr>
<td>Range</td>
<td>1 to 20</td>
</tr>
<tr>
<td>Resolution</td>
<td>1</td>
</tr>
</tbody>
</table>

**Details**

A segment which is set to Off cannot be specified.
This command is not available during measurement and when Displayed Segment Mode is Auto.

**Example of Use**

To specify 2 to the segment to display the trace data in.

```
DISP:SPUR:SEG 2
DISP:SPUR:SEG?
> 2
```
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*Page of Summary Auto/Manual*

**Function**

This command turns on the summary page auto numbering.

**Command**

```
DISP:SPUR:SEGM:AUTO switch_com
```

**Query**

```
DISP:SPUR:SEGM:AUTO?
```

**Response**

```
switch_res
```

**Parameter**

<table>
<thead>
<tr>
<th>Parameter</th>
<th>Description</th>
</tr>
</thead>
<tbody>
<tr>
<td><code>switch_com</code></td>
<td>Auto mode On/Off</td>
</tr>
<tr>
<td>ON</td>
<td>Auto mode is set to On.</td>
</tr>
<tr>
<td>OFF</td>
<td>Auto mode is set to Off.</td>
</tr>
<tr>
<td><code>Switch_res</code></td>
<td>Auto mode On/Off</td>
</tr>
<tr>
<td>1</td>
<td>On</td>
</tr>
<tr>
<td>0</td>
<td>Off</td>
</tr>
</tbody>
</table>

**Details**

Auto mode makes it possible to display the page on which the segment set in Displayed Segment is.

**Example of Use**

To turn on the summary page auto numbering.

```
DISP:SPUR:SEG:AUTO ON
DISP:SPUR:SEG:AUTO?
> 1
```
**Chapter 4  Native Device Message Details**


Displayed Segment Mode

**Function**

This command switches the display mode of a segment.

**Command**

```
DISP:SPUR:SEGM:MODE switch_com
```

**Query**

```
DISP:SPUR:SEGM:MODE?
```

**Response**

```
switch_res
```

**Parameter**

<table>
<thead>
<tr>
<th>switch_com</th>
<th>Display mode</th>
</tr>
</thead>
<tbody>
<tr>
<td>ON</td>
<td>1</td>
</tr>
<tr>
<td>OFF</td>
<td>0</td>
</tr>
</tbody>
</table>

<table>
<thead>
<tr>
<th>switch_res</th>
<th>Display mode</th>
</tr>
</thead>
<tbody>
<tr>
<td>1</td>
<td>Auto</td>
</tr>
<tr>
<td>0</td>
<td>Manual</td>
</tr>
</tbody>
</table>

**Example of Use**

To set the display mode of a segment to Auto.

```
DISP:SPUR:SEGM:MODE ON
DISP:SPUR:SEGM:MODE?
> 1
```
**DISP:**SPUR:SEGM:NEXT

**Next Page**

**Function**

This command displays the summary on the next page.

**Command**

DISP:SPUR:SEGM:NEXT

**Details**

The summary set in Result Type is displayed.

**Example of Use**

To display the summary on the next page.

DISP:SPUR:SEGM:NEXT

---

**DISP:**SPUR:SEGM:PREV

**Previous Page**

**Function**

This command displays the summary on the previous page.

**Command**

DISP:SPUR:SEGM:PREV

**Details**

The summary set in Result Type is displayed.

**Example of Use**

To display the summary on the previous page.

DISP:SPUR:SEGM:PREV
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**DISP:SPUR:SEGM:REST?**
Displayed Restart Query

Function

This command queries whether the remeasurement message is displayed on the trace.

Query

DISP:SPUR:SEGM:REST?

Response

switch

Parameter

<table>
<thead>
<tr>
<th>switch</th>
<th>Message displayed/not displayed</th>
</tr>
</thead>
<tbody>
<tr>
<td>1</td>
<td>Message is displayed.</td>
</tr>
<tr>
<td>0</td>
<td>Message is not displayed.</td>
</tr>
</tbody>
</table>

Details

When the sweep has paused and Spurious Emission is set to On, switch Time Domain Measurement into On. Then the remeasurement message, “Please sweep again.”, is displayed.

Example of Use

To query whether the remeasurement message is displayed on the trace.

DISP:SPUR:SEGM:REST?
> 1
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**DISP:SPUR:STAB/DISP:SPUR:STAB?**
Displayed Summary Table

**Function**
This command sets the content to be displayed in the Summary Table.

**Command**
DISP:SPUR:STAB mode_com

**Query**
DISP:SPUR:STAB?

**Response**
mode_res

**Parameter**

<table>
<thead>
<tr>
<th>mode_com</th>
<th>The contents displayed for Summary Table.</th>
</tr>
</thead>
<tbody>
<tr>
<td>RANG</td>
<td>Frequency range for each segment</td>
</tr>
<tr>
<td>RES</td>
<td>Measurement result for each segment (Default)</td>
</tr>
</tbody>
</table>

<table>
<thead>
<tr>
<th>mode_res</th>
<th>The contents displayed for Summary Table.</th>
</tr>
</thead>
<tbody>
<tr>
<td>RANG</td>
<td>Frequency range for each segment</td>
</tr>
<tr>
<td>RES</td>
<td>Measurement result for each segment</td>
</tr>
</tbody>
</table>

**Example of Use**
To display the measurement result in the Summary Table
DISP:SPUR:STAB RES
DISP:SPUR:STAB?
> RES
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Spurious Emission Reference Level

**Function**

This command sets the reference level of each segment.

**Command**

```
real_1,real_2,real_3,real_4,real_5,real_6,real_7,real_8,
real_9,real_10,real_11,real_12,real_13,real_14,real_15,
real_16,real_17,real_18,real_19,real_20
```

**Query**

```
```

**Response**

```
real_1,real_2,real_3,real_4,real_5,real_6,real_7,real_8,
real_9,real_10,real_11,real_12,real_13,real_14,real_15,
real_16,real_17,real_18,real_19,real_20
```

Value is returned in dBm units, without suffix code.

**Parameter**

```
real_n  Reference level of Segment n
Range   Value equivalent to –120 to +50 dBm
Resolution  0.01 dB
Suffix code DBM,DM
              dBm is used when omitted.
Default    0 dBm
```

**Example of Use**

To set the reference level of each segment.
```
0DBM,0,0,0,0,0,0,0,0,0,0,0,0,0,0,0,0,0,0,0
> 0.00,0.00,0.00,0.00,0.00,0.00,0.00,0.00,8.00,0.00,0.00,0.00,0.00,0.00,0.00,0.00,0.00,0.00,0.00,0.00,0.00,0.00
```
DMD/DMD?
Storage Mode (Trace D)

Function

This command sets the storage mode of Trace D.

Command

DMD mode

Query

DMD?

Response

mode

Parameter

<table>
<thead>
<tr>
<th>mode</th>
<th>Storage mode</th>
</tr>
</thead>
<tbody>
<tr>
<td>0</td>
<td>Off</td>
</tr>
<tr>
<td>1</td>
<td>Max Hold</td>
</tr>
<tr>
<td>2</td>
<td>Average</td>
</tr>
<tr>
<td>3</td>
<td>Min Hold</td>
</tr>
<tr>
<td>6</td>
<td>Linear Average</td>
</tr>
</tbody>
</table>

Details

This command is not available in the following cases:
- During the Spectrum Emission Mask measurement.
- During the Spurious Emission measurement.

Example of Use

To set the storage mode to Average.

DMD 2
DMD?
> 2
DPOINT/DPOINT?

Trace Point

Function

This command sets the number of trace display points. When Couple Time/Frequency Domain is set to Off, each parameter is specified in accordance with the already-specified frequency axis or time axis measurement.

Command

DPOINT point

Query

DPOINT?

Response

point

Parameter

<table>
<thead>
<tr>
<th>point</th>
<th>Number of trace display points</th>
</tr>
</thead>
<tbody>
<tr>
<td>11</td>
<td>11 points</td>
</tr>
<tr>
<td>21</td>
<td>21 points</td>
</tr>
<tr>
<td>41</td>
<td>41 points</td>
</tr>
<tr>
<td>51</td>
<td>51 points</td>
</tr>
<tr>
<td>101</td>
<td>101 points</td>
</tr>
<tr>
<td>201</td>
<td>201 points</td>
</tr>
<tr>
<td>251</td>
<td>251 points</td>
</tr>
<tr>
<td>401</td>
<td>401 points</td>
</tr>
<tr>
<td>501</td>
<td>501 points</td>
</tr>
<tr>
<td>1001</td>
<td>1001 points</td>
</tr>
<tr>
<td>2001</td>
<td>2001 points</td>
</tr>
<tr>
<td>5001</td>
<td>5001 points</td>
</tr>
<tr>
<td>10001</td>
<td>10001 points</td>
</tr>
<tr>
<td>30001</td>
<td>30001 points</td>
</tr>
</tbody>
</table>

Details

This command is not available during the Spectrum Emission Mask measurement or the Spurious Emission measurement.
When Signal Generator Control is On, the number of trace display points is set to 201 points.
When Noise Floor Reduction is On, the maximum trace display point number is 10001.

Example of Use

To set the number of trace display points to 5001 points.
DPOINT 5001
DPOINT?
> 5001
EMD/EMD?
Storage Mode (Trace E)

Function
This command sets the storage mode of Trace E.

Command
EMD mode

Query
EMD?

Response
mode

Parameter
mode
0 Off
1 Max Hold
2 Average
3 Min Hold
6 Linear Average

Details
This command is not available in the following cases:
- During the Spectrum Emission Mask measurement.
- During the Spurious Emission Mask measurement.

Example of Use
To set the storage mode to Average.
EMD 2
EMD?
> 2
ERASEWUP
Erase Warm Up Message

Function
This command erases the warm up message displayed after startup.

Command
ERASEWUP

Example of Use
To erase the warm up message.
ERASEWUP

ESE2/ESE2?
End Event Status Enable Command/Query

Function
This command sets the END event status enable register. When the query command is issued, the value of the END event status enable register is returned.

Command
ESE2  n

Query
ESE2?

Response
n

Parameter

n  END event status enable register
Value  = bit0 + bit1 + bit2 + bit3 + bit4 + bit5 + bit6 + bit7
bit0: 2^0 = 1  End of sweep
bit1: 2^1 = 2  (Not used)
bit2: 2^2 = 4  (Not used)
bit3: 2^3 = 8  (Not used)
bit4: 2^4 = 16  End of Average
bit5: 2^5 = 32  End of Measure
bit6: 2^6 = 64  End of Max/Min Hold
bit7: 2^7 = 128  (Not used)
Example of Use

To enable the measurement end (End of Measure) status.

```
ESE2 32  
ESE2?  
> 1
```

**ESR2?**

END Event Status Register Query

**Function**

This command queries the END event status register value. Clears the END event status register after readout.

**Query**

```
ESR2?
```

**Response**

```
n
```

**Parameter**

```
n  END event status register
Value = bit0 + bit1 + bit2 + bit3 + bit4 + bit5 + bit6 + bit7
  bit0: 2⁰ = 1   End of sweep
  bit1: 2¹ = 2   (Not used)
  bit2: 2² = 4   (Not used)
  bit3: 2³ = 8   (Not used)
  bit4: 2⁴ = 16  End of Average
  bit5: 2⁵ = 32  End of Measure
  bit6: 2⁶ = 64  End of Max/Min Hold
  bit7: 2⁷ = 128 (Not used)
```

**Range**

```
0 to 255
```

**Example of Use**

To query the END event status register value. (End of sweep)

```
ESR2?  
> 1
```
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FETC:SEM?
Spectrum Emission Mask Fetch

Function

This command outputs the result of Spectrum Emission Mask measurement.

Query

FETC:SEM? n

Response

When the result mode is “A”.

```plaintext
total_judge, ref_power,
abs_lower_offset_1,
margin_lower_offset_1, freq_lower_offset_1,
lower_offset_1, abs_upper_offset_1,
margin_upper_offset_1, freq_upper_offset_1,
upper_offset_1,
abs_lower_offset_2,
margin_lower_offset_2, freq_lower_offset_2,
lower_offset_2, abs_upper_offset_2,
margin_upper_offset_2, freq_upper_offset_2,
upper_offset_2,
.......
abs_lower_offset_12,
margin_lower_offset_12, freq_lower_offset_12,
lower_offset_12, abs_upper_offset_12,
margin_upper_offset_12, freq_upper_offset_12,
upper_offset_12
(n=1)
```

When the result mode is “B”.

```plaintext
-999.0, ref_power, -999.0, -999.0, 0,
-999.0, -999.0, -999.0, -999.0, -999.0,
rel_lower_offset_1, abs_lower_offset_1,
freq_lower_offset_1
-999.0, -999.0,
rel_upper_offset_1, abs_upper_offset_1,
freq_upper_offset_1
-999.0, -999.0,
rel_lower_offset_2, abs_lower_offset_2,
freq_lower_offset_2
```
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-999.0,-999.0,
rel_upper_offset_2,abs_upper_offset_2,
freq_upper_offset_2
......
-999.0,-999.0,
rel_lower_offset_12,abs_lower_offset_12,
freq_lower_offset_12
-999.0,-999.0,
rel_upper_offset_12,abs_upper_offset_12,
freq_upper_offset_12
margin_lower_offset_1,margin_upper_offset_1,
margin_lower_offset_2,margin_upper_offset_2,
......
margin_lower_offset_12,margin_upper_offset_12
(n=1)
-999.0,-999.0,
lower_offset_1,upper_offset_1,
lower_offset_2,upper_offset_2,
......
lower_offset_12,upper_offset_12
(n=7 or 8)
-999.0,-999.0,
abs_lower_offset_1,abs_upper_offset_1,
abs_lower_offset_2,abs_upper_offset_2,
......
abs_lower_offset_12,abs_upper_offset_12
(n=10)
-999.0,-999.0,
rel_lower_offset_1,rel_upper_offset_1,
rel_lower_offset_2,rel_upper_offset_2,
......
rel_lower_offset_12,rel_upper_offset_12
(n=11)
total_judge,ref_power,
abs_lower_offset_1,abs_upper_offset_1,
margin_lower_offset_1,margin_upper_offset_1,
freq_lower_offset_1,freq_upper_offset_1,
lower_offset_1,upper_offset_1,
abs_lower_offset_2,abs_upper_offset_2,
margin_lower_offset_2,margin_upper_offset_2,
freq_lower_offset_2,freq_upper_offset_2,
lower_offset_2,upper_offset_2,
......
abs_lower_offset_12,abs_upper_offset_12,
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margin_lower_offset_12, margin_upper_offset_12, freq_lower_offset_12, freq_upper_offset_12, lower_offset_12, upper_offset_12  
(n=13)

Parameter

ref_power  
Reference absolute power

abs_lower_offset_n  
Peak value of absolute power of lower Offset-n

abs_upper_offset_n  
Peak value of absolute power of upper Offset-n
  No suffix code, dBm unit, 0.001 dB resolution
  Returns –999.0 when no measurement is performed.

rel_lower_offset_n  
Peak value of relative power of lower Offset-n

rel_upper_offset_n  
Peak value of relative power of upper Offset-n

margin_lower_offset_n  
Minimum value of margin of lower Offset-n

margin_upper_offset_n  
Minimum value of margin of upper Offset-n
  No suffix code, dB unit, 0.001 dB resolution
  Returns –999.0 when no measurement is performed.

freq_lower_offset_n  
Frequency of peak level of lower Offset-n

freq_upper_offset_n  
Frequency of peak level of upper Offset-n
  No suffix code, Hz unit, 1 Hz resolution
  Returns –999999999999 when no measurement is performed.

total_judge  
Total judgment result

lower_offset_n  
Judgment result of lower Offset-n

upper_offset_n  
Judgment result of upper Offset-n
  Returns 0 when it is PASS, and returns 1 when it is FAIL.
  Returns –999.0 when no measurement is performed.

Details

This function outputs the measurement result at Spectrum Emission Mask measurement performed lastly. It is possible to output the
measurement result in a state that the measurement has already been done, and in a different style.
You can use READ command if you perform a measurement along with starting a sweep again.
Return values of this function vary according to the result mode (cf. :SYST:RES:MODE).

Example of Use

To obtain the peak value of the absolute power for SEM measurement (n=10).
FETC:SEM? 10
>
-999.0,-999.0,-100.000,-100.000,-60.000,-60.000,45.000,-
45.000,-30.000,-30.000,-10.000,-10.000,0.000,0.000,-100.
000,-100.000,-60.000,-60.000,45.000,-45.000,-30.000,-30.
000,-10.000,-10.000,0.000,0.000
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FETC:SPUR?
Spurious Emission Fetch

Function

This command outputs the result of the Spurious Emission measurement.

Query

FETC:SPUR? n

Response

When Result Mode is A:
(When Spurious Emission Result Type is Worst)
judge,spur_1,range_1,freq_1,peak_1,margin_1,limit_1,judge_1,spur_2,range_2,freq_2,peak_2,margin_2,limit_2,judge_2
•••••spur_20,range_20,freq_20,peak_20,margin_20,limit_20,judge_20
(n=1)

(When Spurious Emission Result Type is Peak)
judge,spur_1,range_1,freq_1,peak_1,margin_1,limit_1,judge_1,spur_2,range_2,freq_2,peak_2,margin_2,limit_2,judge_2
•••••spur_n,freq_n,peak_n,margin_n,limit_n,judge_n
(n=1)

When Result Mode is B:
spur_1,range_1,freq_1,peak_1,limit_1,judge_1,spur_2,range_2,freq_2,peak_2,limit_2,judge_2
•••••spur_n,range_n,freq_n,peak_n,limit_n,judge_n
(n=1)

tracedata_1,tracedata_2•••••tracedata_m
(n=2 to 21)

number
(n=22)
### Chapter 4  Native Device Message Details

tracedata_1, tracedata_2, ..., tracedata_m

(n=23 to 42)

<table>
<thead>
<tr>
<th>Parameter</th>
<th>Description</th>
</tr>
</thead>
<tbody>
<tr>
<td>range_n</td>
<td>Segment number of the detected spurious</td>
</tr>
<tr>
<td>spur_n</td>
<td>Spurious number</td>
</tr>
<tr>
<td>number</td>
<td>Number of the detected spurious</td>
</tr>
<tr>
<td>freq_n</td>
<td>Frequency of Spurious</td>
</tr>
<tr>
<td>peak_n</td>
<td>Absolute power of Spurious</td>
</tr>
<tr>
<td>margin_n</td>
<td>Relative power from the limit line of Spurious</td>
</tr>
<tr>
<td>limit_n</td>
<td>Power value of the limit line of Spurious</td>
</tr>
<tr>
<td>judge_n</td>
<td>Limit line judges the detected spurious as Pass or Fail.</td>
</tr>
</tbody>
</table>

Values have no suffix code, are in Hz units, and have 0.01 Hz Resolution.

–999.0 is returned when an error occurs/no measurement is performed.

–999,999,999,999 is returned when an error occurs/no measurement is performed.

–999.0 is returned when an error occurs/no measurement is performed.

–999.0 is returned when an error occurs/no measurement is performed.

–999.0 is returned when judged as Pass, and 1 is returned when judged as Fail.
**Chapter 4  Native Device Message Details**

<table>
<thead>
<tr>
<th>Function</th>
<th>Description</th>
</tr>
</thead>
</table>
| tracedata_m| n=2 to 21 Returns a comma separated list of the trace data for the selected segment (where segment number = n-1).  
|            | n=23 to 42 Returns a comma separated list of the trace data for the selected segment (where segment number = n-22).  
|            | Values have no suffix code, are in dBm units, and have 0.001 dB resolution.  
|            | –999.0 is returned when no measurement is performed.  |
| judge      | Pass/Fail judgment to the whole segment  
|            | 0 is returned when judged as Pass, and 1 is returned when Fail.  
|            | –999.0 is returned when no measurement is performed.  |

**Details**

This function outputs the result of the Spurious Emission measurement performed lastly. This function does not accompany any sweep, thus this function is used to output the measurement result in a different type, when the measurement has already completed.  
Use READ command to perform re-measurement with redoing sweep.  
A return value of this command depends on the compatible mode.  
(cf. :SYST:RES:MODE)

**Example of Use**

To obtain the result of the Spurious Emission measurement (when Result Mode is A, and when Spurious Emission Result Type is Worst).  
FETC:SPUR? 1  
>  
0,1,1,135618.00,-64.25,51.25,-13.00,0,2,2,155970.00,-63.91,50.91,-13.00,0••••
FMD/FMD?
Storage Mode (Trace F)

Function
This command sets the storage mode of Trace F.

Command
FMD mode

Query
FMD?

Response
mode

Parameter

<table>
<thead>
<tr>
<th>mode</th>
<th>Storage mode</th>
</tr>
</thead>
<tbody>
<tr>
<td>0</td>
<td>Off</td>
</tr>
<tr>
<td>1</td>
<td>Max Hold</td>
</tr>
<tr>
<td>2</td>
<td>Average</td>
</tr>
<tr>
<td>3</td>
<td>Min Hold</td>
</tr>
<tr>
<td>6</td>
<td>Linear Average</td>
</tr>
</tbody>
</table>

Details
This command is not available in the following cases:
- During the Spectrum Emission Mask measurement.
- During the Spurious Emission measurement.

Example of Use
To set the storage mode of Trace F to Average.
FMD 2
FMD?
> 2
Chapter 4  Native Device Message Details

FOFFSET/FOFFSET?
Frequency Offset

Function

This command sets the offset value of the frequency display.

Command

FOFFSET freq

Query

FOFFSET?

Response

freq
No suffix code. Value is returned in Hz units.

Parameter

freq  Offset frequency
Range   –100 to 100 GHz
Resolution  1 Hz
Suffix code  HZ, KHZ, KZ, MHZ, MZ, GHZ, GZ
Hz is used when omitted.

Example of Use

To set the offset value of the frequency display to 500 MHz.
FOFFSET 500MHZ
FOFFSET?
> 500000000
FOFMD/FOFMD?
Frequency Offset Mode

Function

This command sets the frequency display offset ON/OFF.

Command

FOFMD on_off

Query

FOFMD?

Response

on_off

Parameter

on_off

ON
Uses frequency display offset.

OFF
Does not use frequency display offset.

Example of Use

To set frequency offset display to ON:

FOFMD ON
FOFMD?
> ON
FORM/FORM?
Numeric Data Format

Function

This command sets the format of the data that is read out with TRACe[:DATA]?.

Command

FORM format

Query

FORM?

Response

format
length

Parameter

format
  ASC  ASCII format (Default)
  REAL 32-bit binary floating point format
  INT 32-bit binary fixed point format.
length
  0  This can be set only when ASC is specified for format.
  32  If REAL is specified for format, the results are returned in the 32-bit floating point format.
      If INT is specified for format, the results are returned in the 32-bit fixed point format.
      This can be set only when REAL or INT is specified for format.

When omitted
  This will be 0 when ASC is specified for format.
  This will be 32 when REAL or INT is specified for format.

Details

When REAL is specified for format, the trace data is output in the 32-bit single-precision floating point format specified in IEEE754.

Example of Use

To set the trace data format to the ASCII format.
FORM ASC
FORM?
> ASC, 0
FORM:BORD/FORM:BORD?
Binary Data Byte Order

Function

This command sets the byte order of the data that is read out, when REAL,32 or INTeger,32 has been set for FORM.

Command

FORM:BORD border

Query

FORM:BORD?

Parameter

border
NORM Sets the byte order to big endian (Default).
SWAP Sets the byte order to little endian.

Details

This function sets the data arrangement format when data is output in the binary format. In the case of big endian, the data is arranged from the highest byte, and in the case of little endian, from the lowest byte. For example, in the case of the 4-byte data of 0x01234567, the data is arranged as 01 23 45 67 in the case of big endian, and as 67 45 23 01 in the case of little endian.

Example of Use

To set the byte order to little endian.
FORM:BORD SWAP
FORM:BORD?
> SWAP
**FREQ:CENT:STEP/FREQ:CENT:STEP?**

**Frequency Step Size**

**Function**

This command sets the step size of the center, start and stop frequency.

**Command**

\[ \text{FREQ:CENT:STEP } \text{freq} \]

**Query**

\[ \text{FREQ:CENT:STEP}? \]

**Parameter**

<table>
<thead>
<tr>
<th>freq</th>
<th>Step size</th>
</tr>
</thead>
<tbody>
<tr>
<td><strong>Range</strong></td>
<td></td>
</tr>
</tbody>
</table>
| **[MS269xA]** | 1 Hz to 6.00 GHz (MS2690A)  
1 Hz to 13.5 GHz (MS2691A)  
1 Hz to 26.5 GHz (MS2692A) |
| **[MS2830A]** | 1 Hz to 3.6 GHz (Option 040)  
1 Hz to 6.0 GHz (Option 041)  
1 Hz to 13.5 GHz (Option 043)  
1 Hz to 26.5 GHz (Option 044)  
1 Hz to 43 GHz (Option 045) |
| **[MS2840A]** | 1 Hz to 3.6 GHz (Option 040)  
1 Hz to 6.0 GHz (Option 041)  
1 Hz to 26.5 GHz (Option 044)  
1 Hz to 44.5 GHz (Option 046) |
| **[MS2850A]** | 1 Hz to 32 GHz (Option 047)  
1 Hz to 44.5 GHz (Option 046) |

**Resolution**

1 Hz

**Suffix code**

Hz,KHZ,KZ,MHZ,MZ,GHZ,GZ

Hz is used when omitted.

**Default**

1 GHz

**Example of Use**

To set the step size to 100.0 kHz.

\[ \text{FREQ:CENT:STEP } 100000 \]

\[ \text{FREQ:CENT:STEP}? \]

\[ > 100000 \]
### FREQ:DOM:COUP/FREQ:DOM:COUP?

**Couple Time/Frequency Domain**

**Function**
Sets whether to couple the time domain parameters and frequency domain parameters.

**Command**
FREQ:DOM:COUP switch_com

**Query**
FREQ:DOM:COUP?

**Response**
switch_res

**Parameter**

<table>
<thead>
<tr>
<th>switch_com</th>
<th>Enables/disables coupling</th>
</tr>
</thead>
<tbody>
<tr>
<td>ON</td>
<td>1</td>
</tr>
<tr>
<td>OFF</td>
<td>0</td>
</tr>
</tbody>
</table>

<table>
<thead>
<tr>
<th>switch_res</th>
<th>Coupling enabled/disabled state</th>
</tr>
</thead>
<tbody>
<tr>
<td>1</td>
<td>The RBW, VBW, detection mode, and trace point are coupled (shared) between the time domain and the frequency domain.</td>
</tr>
<tr>
<td>0</td>
<td>The RBW, VBW, detection mode, and trace point for the time domain are separate from those for the frequency domain.</td>
</tr>
</tbody>
</table>

**Example of Use**

To disable coupling.
FREQ:DOM:COUP OFF
FREQ:DOM:COUP?
> 0
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FREQ:SYNT/FREQ:SYNT?
Switching Speed

Function
This command selects the switching speed of frequency.

Command
FREQ:SYNT mode

Query
FREQ:SYNT?

Response
mode  Frequency switching mode

Parameter
mode  Frequency switching speed

BPH  The operation is done so as to improve the phase noise characteristic rather than the frequency switching speed.

NORM  Becomes same setting as BPH (response is BPH).

FAST  The operation is done so as to increase the frequency switching speed at the cost of the phase noise characteristic.

Details
This command is available for MS2830A, MS2840A and MS2850A. Note that because the FAST setting gives priority to the switching speed of the local frequency, the phase noise characteristic worsens.

Example of Use
To set the frequency switching mode to the speed priority mode.
FREQ:SYNT FAST
FREQ:SYNT?
> FAST
FREQ:SYNT:LPH:STAT?
Low Phase Noise Status Query

Function
This command queries the state of Low Phase Noise function with the current measurement conditions.

Query
FREQ:SYNT:LPH:STAT?

Response
status

Parameter
status
1 Uses Low Phase Noise function.
0 Do not use Low Phase Noise function.

Detail
This function is available when MS2830A-062/066 or MS2840A-066/166 is installed.
The phase noise characteristics can be improved using the Low Phase Noise Function when the Low Phase Noise switch is On, the frequency range is \(-20 \text{ MHz} \leq f \leq 3.7 \text{ GHz}\) \((-20 \text{ MHz} \leq f < 3.5 \text{ GHz}\) when Frequency Band Mode is Spurious) and the Span Frequency is less than 1 MHz.
However, if a signal outside the DUT frequency range is input while using the Low Phase Noise Function, it may be possible to measure spurious noise generated within the unit.
Refer to the MS2830A/MS2840A/MS2850A Signal Analyzer Operation Manual (Spectrum Analyzer Function Operation) for details about spurious noise generation and appropriate conditions for using the Low Phase Noise Function.

Example of Use
To query the state of Low Phase Noise function with the current measurement conditions.
FREQ:SYNT:LPH:STAT?
> 1
FS
Full Span

Function
This command sets the frequency span to the maximum.

Command
FS

Details
This command is not available during the Spectrum Emission Mask measurement or the Spurious Emission measurement.

Example of Use
To set the frequency span to the maximum:
FS
**FULBAND/FULBAND?**
External Mixer Band Select

**Function**
This command selects external mixer band.

**Command**
FULBAND band

**Query**
FULBAND?

**Response**
band

**Parameter**

<table>
<thead>
<tr>
<th>band</th>
<th>Description</th>
</tr>
</thead>
<tbody>
<tr>
<td>VHP</td>
<td>High Performance Waveguide Mixer</td>
</tr>
<tr>
<td>EHP</td>
<td>Band EHP (60.0 to 90.0 GHz, 12–)</td>
</tr>
<tr>
<td>A</td>
<td>Band A (26.5 to 40.0 GHz, 4+)</td>
</tr>
<tr>
<td>Q</td>
<td>Band Q (33.0 to 50.0 GHz, 5+)</td>
</tr>
<tr>
<td>U</td>
<td>Band U (40.0 to 60.0 GHz, 6+)</td>
</tr>
<tr>
<td>V</td>
<td>Band V (50.0 to 75.0 GHz, 8+)</td>
</tr>
<tr>
<td>E</td>
<td>Band E (60.0 to 90.0 GHz, 9+)</td>
</tr>
<tr>
<td>W</td>
<td>Band W (75.0 to 110.0 GHz, 11+)</td>
</tr>
<tr>
<td>F</td>
<td>Band F (90.0 to 140.0 GHz, 14+)</td>
</tr>
<tr>
<td>D</td>
<td>Band D (110.0 to 170.0 GHz, 17+)</td>
</tr>
<tr>
<td>G</td>
<td>Band G (140.0 to 220.0 GHz, 22+)</td>
</tr>
<tr>
<td>Y</td>
<td>Band Y (170.0 to 260.0 GHz, 26+)</td>
</tr>
<tr>
<td>J</td>
<td>Band J (220.0 to 325.0 GHz, 33+)</td>
</tr>
</tbody>
</table>

**Details**
This function is available when Option 044/045 is installed for MS2830A.
This function is available when Option 044/046 is installed for MS2840A.
This function is readily available for MS2850A.

**Example of Use**
To set the external mixer band to Band U.
FULBAND U
FULBAND?
> U
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**FULLSPAN**

Full Span

**Function**

This command sets the frequency span to the maximum.

**Command**

FULLSPAN

**Details**

This command is not available in the following cases:
- During the Spectrum Emission Mask measurement.
- During the Spurious Emission measurement.

**Example of Use**

To set the frequency span to the maximum.

FULLSPAN
GATE/GATE?
Gate Sweep

Function
This command sets the gate sweep ON/OFF.

Command
GATE on_off

Query
GATE?

Response
on_off

Parameter

on_off
  ON  Gate sweep ON/OFF
  OFF Uses gate sweep.
  OFF Does not use gate sweep.

Details
This command is disabled when Signal Generator Control is set to On.

Example of Use
To use gate sweep.
GATE ON
GATE?
> ON
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GATELVL/GATELVL?
Gate Level

Function
This command sets the threshold value of the level where gate sweep is started.

Command
GATELVL level

Query
GATELVL?

Response
level
Returns a value in dBm units, without a suffix code.

Parameter
level
Threshold value of level where gate sweep is started
Range –60 to 50 dBm
Resolution 1 dB
Suffix code DBM, DM
dBm is used when omitted.

Details
This setting is applied when the gate signal source is wideband IF detection (Wide IF video).

Example of Use
To set the gate sweep start level to –10 dBm.
GATELVL -10
GATELVL?
> -10
GATESLP/GATESLP?

Gate Slope

Function

This command sets the gate signal detection mode.

Command

GATESLP edge

Query

GATESLP?

Response

edge

Parameter

edge  Gate signal detection mode
RISE  Detects using the rising edge.
FALL  Detects using the falling edge.

Details

This setting is applied when the gate signal source is wideband IF detection (Wide IF video), external input, SG marker, or Baseband Interface (BBIF).

Example of Use

To detect using rising edge:
GATESLP RISE
GATESLP?
> RISE
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GATESOURCE/GATESOURCE?
Gate Source

Function
This command sets the gate signal source.

Command
GATESOURCE source

Query
GATESOURCE?

Response
source

Parameter
source  Gate signal source

[MS269xA]
WIDEVID  Wideband IF detection (Wide IF Video)
EXT  External input (External)
SG  SG marker
BBIF  Baseband Interface (BBIF)

[MS2830A], [MS2840A]
WIDEVID  Wideband IF detection (Wide IF Video)
EXT  External input (External)
SG  SG marker
FRAME  Frame period trigger

[MS2850A]
WIDEVID  Wideband IF detection (Wide IF Video)
EXT  External input (External 1)
EXT2  External input (External 2)
FRAME  Frame period trigger

Details

[MS269xA]
SG marker trigger can be selected only when the Option 020/120 Vector Signal Generator is installed.
BBIF trigger cannot be selected only when the Option 040/140 Baseband Interface Unit is not installed or the software package is Ver.6.00.00 or later.

[MS2830A], [MS2840A]
SG marker trigger can be selected only when the Option 020/120/021/121 Vector Signal Generator is installed.

Example of Use
To set the gate signal source to wideband IF detection.
GATESOURCE WIDEVID
GATESOURCE?
> WIDEVID
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GDL/GDL?
Gate Delay

Function

This command sets the delay time until starting gate sweep.

Command

GDL time

Query

GDL?

Response

time

Returns a value in µs units, without a suffix code.

Parameter

time  Delay time to gate start
Range  0 to 1 s
Resolution  20 ns
Suffix code  NS, US, MS, S
MS is used when omitted.

Example of Use

To set the gate delay time to 20 ms.
GDL 20
GDL 20000US
GDL 20MS
GDL 0.02S
GDL?
> 20000
GLN/GLN?

Gate Length

Function

This command sets the gate time length.

Command

GLN time

Query

GLN?

Response

time

No suffix code. Value is returned in µs units.

Parameter

<table>
<thead>
<tr>
<th>Parameter</th>
<th>Value</th>
</tr>
</thead>
<tbody>
<tr>
<td>time</td>
<td>Delay time until starting gate</td>
</tr>
<tr>
<td></td>
<td>Range</td>
</tr>
<tr>
<td></td>
<td>Resolution</td>
</tr>
<tr>
<td></td>
<td>Suffix code</td>
</tr>
<tr>
<td></td>
<td></td>
</tr>
</tbody>
</table>

Example of Use

To set the gate time length to 20 ms.
GLN 20
GLN 20000US
GLN 20MS
GLN 0.02S
GLN?
> 20000
HOLDPAUSE/HOLDPAUSE?

Storage Count

Function

This command sets the storage mode count.

Command

HOLDPAUSE count

Query

HOLDPAUSE?

Response

count

Parameter

count Storage mode count
    Range 2 to 9999

Details

This command is not available during the Spurious Emission measurement.

Example of Use

To set the storage mode count to 10 times.

HOLDPAUSE 10
HOLDPAUSE?
> 10
INIT:SEM
Spectrum Emission Mask Initiate

Function
This command performs single Spectrum Emission Mask measurement.

Command
INIT:SEM

Details
When this function is executed, Spectrum Emission Mask measurement is set to On and the measurement is performed once.

Example of Use
To perform SEM measurement once.

INIT:SPUR
Spurious Emission Initiate

Function
This command starts the Spurious Emission measurement.

Command
INIT:SPUR

Details
When this function is executed, the Spurious measurement is set to On and the measurement starts.

Example of Use
To start the Spurious measurement.

INIT:SPUR
**INIT:SPUR:PAUS:CONT**

**Spurious Emission Continue**

**Function**

Pause is cancelled and measurement will continue when this command is sent while it is in remote control state and paused.

**Command**

`INIT:SPUR:PAUS:CONT`

**Details**

It pauses before the pertinent segment is swept when Pause before Sweep is set to On. This command is used to cancel the pause and continue the measurement.

This command can only be used while it is in remote control state and paused.

Pause is cancelled and measurement stops when this command is sent while it is in local status. Press the F1 [Continue] key to continue the measurement while it is in local status.

To query the measurement results after executing this command, perform the synchronization control using the "*WAI" command.

**Example of Use**

Measurement method when pausing twice

```
INIT:SPUR Measure until paused
*WAI Wait until paused
INIT:SPUR:PAUS:CONT Cancel the pause, and continue the measurement
*WAI Wait until paused
INIT:SPUR:PAUS:CONT Cancel the pause, and continue the measurement
*WAI Wait until the measurement is completed
FETC:SPUR? 1 Read the measurement results
> 1,1,1,9282.00,-84.38,71.38,...
```
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INIT:SPUR:PAUS:STAT?
Spurious Emission Pause Status Query

Function
This command queries whether the Spurious Emission measurement is in remote control state and is being paused.

Query
INIT:SPUR:PAUS:STAT?

Response
switch

Parameter
switch Status of the Spurious Emission measurement
1 Remote control state and paused
0 All other status

Details
It pauses before the pertinent segment is swept when Pause before Sweep is set to On. This command is used to query if it is paused or not. This command can only be used while it is in remote control state. Pause is cancelled and measurement will stop when this command is sent while it is in local status.

Example of Use
To query whether it is in remote control state and is being paused.
INIT:SPUR:PAUS:STAT?
> 0
LINSCALEDIV/LINSCALEDIV?
Linear Scale Range

Function

This command sets the Y-axis scale magnification for the linear scale display.

Command

LINSCALEDIV scale

Query

LINSCALEDIV?

Response

scale

No suffix code. Value is returned in % units.

Parameter

<table>
<thead>
<tr>
<th>scale</th>
<th>Y-axis scale magnification</th>
</tr>
</thead>
<tbody>
<tr>
<td>1</td>
<td>1%/div</td>
</tr>
<tr>
<td>2</td>
<td>2%/div</td>
</tr>
<tr>
<td>5</td>
<td>5%/div</td>
</tr>
<tr>
<td>10</td>
<td>10%/div</td>
</tr>
</tbody>
</table>

Example of Use

To set the scale magnification to 5%/div.
LINSCALEDIV 5
LINSCALEDIV?
> 5
LOADSTD/LOADSTD?
Load Standard Parameter

Function
This command selects Measure function parameter. Selectable parameters vary depending on the setting for Standard.

Command
LOADSTD function,pattern

Query
LOADSTD? function

Parameter

<table>
<thead>
<tr>
<th>function</th>
<th>Measure function</th>
</tr>
</thead>
<tbody>
<tr>
<td>ADJ</td>
<td>ACP measurement</td>
</tr>
<tr>
<td>BRSTAVGPWR</td>
<td>Burst Average Power measurement</td>
</tr>
<tr>
<td>OBW</td>
<td>OBW measurement</td>
</tr>
<tr>
<td>CHFWR</td>
<td>Channel power measurement</td>
</tr>
<tr>
<td>SEM</td>
<td>Spectrum Emission Mask measurement</td>
</tr>
<tr>
<td>SPUR</td>
<td>Spurious Emission measurement</td>
</tr>
</tbody>
</table>

When Standard is set to W-CDMA Uplink (ACP measurement)

<table>
<thead>
<tr>
<th>pattern</th>
<th>Parameter to be set</th>
</tr>
</thead>
<tbody>
<tr>
<td>UPLINK</td>
<td>3GPP W-CDMA Uplink, ACP measurement</td>
</tr>
<tr>
<td>When omitted</td>
<td>3GPP W-CDMA Uplink, ACP measurement</td>
</tr>
</tbody>
</table>

When Standard is set to W-CDMA Uplink (Burst Average Power measurement)

<table>
<thead>
<tr>
<th>pattern</th>
<th>Parameter to be set</th>
</tr>
</thead>
<tbody>
<tr>
<td>MEAN</td>
<td>3GPP W-CDMA Uplink, Mean Power measurement</td>
</tr>
</tbody>
</table>

When Standard is set to W-CDMA Uplink (OBW measurement)

<table>
<thead>
<tr>
<th>pattern</th>
<th>Parameter to be set</th>
</tr>
</thead>
<tbody>
<tr>
<td>UPLINK</td>
<td>3GPP W-CDMA Uplink</td>
</tr>
<tr>
<td>When omitted</td>
<td>3GPP W-CDMA Uplink</td>
</tr>
</tbody>
</table>

When Standard is set to W-CDMA Uplink (Channel Power measurement)

<table>
<thead>
<tr>
<th>pattern</th>
<th>Parameter to be set</th>
</tr>
</thead>
<tbody>
<tr>
<td>UPLINK</td>
<td>3GPP W-CDMA Uplink, Mean Power measurement</td>
</tr>
<tr>
<td>Parameter</td>
<td>Description</td>
</tr>
<tr>
<td>-----------</td>
<td>-------------</td>
</tr>
<tr>
<td>MEAN</td>
<td>3GPP W-CDMA Uplink, Mean Power measurement</td>
</tr>
<tr>
<td>RRCFILTER</td>
<td>3GPP W-CDMA Uplink, RRC Filtered Power measurement</td>
</tr>
<tr>
<td>When omitted</td>
<td>3GPP W-CDMA Uplink, Mean Power measurement</td>
</tr>
</tbody>
</table>

When Standard is set to W-CDMA Uplink (Spectrum Emission Mask measurement) pattern

<table>
<thead>
<tr>
<th>Parameter</th>
<th>Description</th>
</tr>
</thead>
<tbody>
<tr>
<td>UPLINK</td>
<td>3GPP W-CDMA Uplink, Spectrum Emission Mask measurement (Uplink)</td>
</tr>
<tr>
<td>ADD</td>
<td>3GPP W-CDMA Uplink, Spectrum Emission Mask measurement (Uplink(Additional))</td>
</tr>
<tr>
<td>When omitted</td>
<td>3GPP W-CDMA Uplink, Spectrum Emission Mask measurement(Uplink)</td>
</tr>
</tbody>
</table>

When Standard is set to W-CDMA Downlink (ACP measurement) pattern

<table>
<thead>
<tr>
<th>Parameter</th>
<th>Description</th>
</tr>
</thead>
<tbody>
<tr>
<td>DOWNLINK</td>
<td>3GPP W-CDMA Downlink, ACP measurement(Single Carrier)</td>
</tr>
<tr>
<td>SINGLECARR</td>
<td>3GPP W-CDMA Downlink, ACP measurement(Single Carrier)</td>
</tr>
<tr>
<td>2CARR</td>
<td>3GPP W-CDMA Downlink (2 Carriers)</td>
</tr>
<tr>
<td>3CARR</td>
<td>3GPP W-CDMA Downlink (3 Carriers)</td>
</tr>
<tr>
<td>4CARR</td>
<td>3GPP W-CDMA Downlink (4 Carriers)</td>
</tr>
<tr>
<td>When omitted</td>
<td>3GPP W-CDMA Downlink, ACP measurement(Single Carrier)</td>
</tr>
</tbody>
</table>

When Standard is set to W-CDMA Downlink (Burst Average Power measurement) pattern

<table>
<thead>
<tr>
<th>Parameter</th>
<th>Description</th>
</tr>
</thead>
<tbody>
<tr>
<td>MEAN</td>
<td>3GPP W-CDMA Downlink, Mean Power measurement</td>
</tr>
</tbody>
</table>

When Standard is set to W-CDMA Downlink (OBW measurement) pattern

<table>
<thead>
<tr>
<th>Parameter</th>
<th>Description</th>
</tr>
</thead>
<tbody>
<tr>
<td>DOWNLINK</td>
<td>3GPP W-CDMA Downlink</td>
</tr>
<tr>
<td>When omitted</td>
<td>3GPP W-CDMA Downlink</td>
</tr>
</tbody>
</table>
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When Standard is set to W-CDMA Downlink (Channel Power measurement)

<table>
<thead>
<tr>
<th>pattern</th>
<th>Parameter to be set</th>
</tr>
</thead>
<tbody>
<tr>
<td>DOWNLINK</td>
<td>3GPP W-CDMA Downlink, Mean Power measurement</td>
</tr>
<tr>
<td>MEAN</td>
<td>3GPP W-CDMA Downlink, Mean Power measurement</td>
</tr>
<tr>
<td>RRCFILTER</td>
<td>3GPP W-CDMA Downlink, RRC Filtered Power measurement</td>
</tr>
<tr>
<td>When omitted</td>
<td>3GPP W-CDMA Downlink, Mean Power measurement</td>
</tr>
</tbody>
</table>

When Standard is set to W-CDMA Downlink (Spectrum Emission Mask measurement)

<table>
<thead>
<tr>
<th>pattern</th>
<th>Parameter to be set</th>
</tr>
</thead>
<tbody>
<tr>
<td>43</td>
<td>3GPP W-CDMA Downlink (P ≥ 43 dBm)</td>
</tr>
<tr>
<td>39</td>
<td>3GPP W-CDMA Downlink (39 dBm ≤ P &lt; 43 dBm)</td>
</tr>
<tr>
<td>31</td>
<td>3GPP W-CDMA Downlink (31 dBm ≤ P &lt; 39 dBm)</td>
</tr>
<tr>
<td>31U</td>
<td>3GPP W-CDMA Downlink (P &lt; 31 dBm)</td>
</tr>
<tr>
<td>A43</td>
<td>3GPP W-CDMA Downlink (P ≥ 43 dBm (Additional))</td>
</tr>
<tr>
<td>A39</td>
<td>3GPP W-CDMA Downlink (39 dBm ≤ P &lt; 43 dBm (Additional))</td>
</tr>
<tr>
<td>A31</td>
<td>3GPP W-CDMA Downlink (31 dBm ≤ P &lt; 39 dBm (Additional))</td>
</tr>
<tr>
<td>When omitted</td>
<td>3GPP W-CDMA Downlink (P ≥ 43 dBm)</td>
</tr>
</tbody>
</table>

When Standard is set to Mobile WiMAX (ACP • OBW • Channel Power measurement)

<table>
<thead>
<tr>
<th>pattern</th>
<th>Parameter to be set</th>
</tr>
</thead>
<tbody>
<tr>
<td>10M</td>
<td>10 MHz BW (Channel Bandwidth 10 MHz)</td>
</tr>
<tr>
<td>5M</td>
<td>5 MHz BW (Channel Bandwidth 5 MHz)</td>
</tr>
<tr>
<td>When omitted</td>
<td>10 MHz BW</td>
</tr>
</tbody>
</table>

When Standard is set to Mobile WiMAX (Spectrum Emission Mask measurement)

<table>
<thead>
<tr>
<th>pattern</th>
<th>Parameter to be set</th>
</tr>
</thead>
<tbody>
<tr>
<td>10M</td>
<td>10 MHz BW (Channel Bandwidth 10 MHz)</td>
</tr>
<tr>
<td>5M</td>
<td>5 MHz BW (Channel Bandwidth 5 MHz)</td>
</tr>
<tr>
<td>When omitted</td>
<td>10 MHz BW</td>
</tr>
</tbody>
</table>
When Standard is set to Mobile WiMAX (Burst Average Power measurement)

<table>
<thead>
<tr>
<th>Parameter to be set</th>
<th>5 ms Frame (Power measurement of 1 frame)</th>
</tr>
</thead>
</table>

When omitted

| 5 ms Frame       |

When Standard is set to LTE Uplink/Downlink (ACP measurement)

<table>
<thead>
<tr>
<th>Parameter to be set</th>
</tr>
</thead>
<tbody>
<tr>
<td>1.4 MHz BW (UTRA 5 MHz)</td>
</tr>
<tr>
<td>1.4 MHz BW (E-UTRA 1.4 MHz)</td>
</tr>
<tr>
<td>3 MHz BW (UTRA 5 MHz)</td>
</tr>
<tr>
<td>3 MHz BW (E-UTRA 3 MHz)</td>
</tr>
<tr>
<td>5 MHz BW (UTRA 5 MHz)</td>
</tr>
<tr>
<td>5 MHz BW (E-UTRA 5 MHz)</td>
</tr>
<tr>
<td>10 MHz BW (UTRA 5 MHz)</td>
</tr>
<tr>
<td>10 MHz BW (E-UTRA 10 MHz)</td>
</tr>
<tr>
<td>15 MHz BW (UTRA 5 MHz)</td>
</tr>
<tr>
<td>15 MHz BW (E-UTRA 15 MHz)</td>
</tr>
<tr>
<td>20 MHz BW (UTRA 5 MHz)</td>
</tr>
<tr>
<td>20 MHz BW (E-UTRA 20 MHz)</td>
</tr>
<tr>
<td>5 MHz BW (UTRA 5 MHz)</td>
</tr>
</tbody>
</table>

When Standard set to LTE TDD Downlink (ACP measurement)

<table>
<thead>
<tr>
<th>Parameter to set</th>
</tr>
</thead>
<tbody>
<tr>
<td>1.4 MHz BW (UTRA 1.6 MHz)</td>
</tr>
<tr>
<td>1.4 MHz BW (E-UTRA 1.4 MHz)</td>
</tr>
<tr>
<td>3 MHz BW (UTRA 1.6 MHz)</td>
</tr>
<tr>
<td>3 MHz BW (E-UTRA 3 MHz)</td>
</tr>
<tr>
<td>5 MHz BW (UTRA 1.6 MHz)</td>
</tr>
<tr>
<td>5 MHz BW (E-UTRA 5 MHz)</td>
</tr>
<tr>
<td>5 MHz BW (UTRA 10 MHz)</td>
</tr>
<tr>
<td>5 MHz BW (E-UTRA 5 MHz)</td>
</tr>
<tr>
<td>10 MHz BW (UTRA 1.6 MHz)</td>
</tr>
<tr>
<td>10 MHz BW (UTRA 5 MHz)</td>
</tr>
<tr>
<td>10 MHz BW (UTRA 10 MHz)</td>
</tr>
<tr>
<td>10 MHz BW (E-UTRA 10 MHz)</td>
</tr>
<tr>
<td>15 MHz BW (UTRA 1.6 MHz)</td>
</tr>
<tr>
<td>15 MHz BW (UTRA 5 MHz)</td>
</tr>
<tr>
<td>15 MHz BW (UTRA 10 MHz)</td>
</tr>
<tr>
<td>15 MHz BW (E-UTRA 15 MHz)</td>
</tr>
<tr>
<td>20 MHz BW (UTRA 1.6 MHz)</td>
</tr>
<tr>
<td>20 MHz BW (UTRA 5 MHz)</td>
</tr>
<tr>
<td>20 MHz BW (UTRA 10 MHz)</td>
</tr>
<tr>
<td>20 MHz BW (UTRA 10 MHz)</td>
</tr>
</tbody>
</table>
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<table>
<thead>
<tr>
<th>Parameter</th>
<th>Description</th>
</tr>
</thead>
<tbody>
<tr>
<td>20MBW_EUTRA20MHZ</td>
<td>20 MHz BW (E-UTRA 20 MHz)</td>
</tr>
<tr>
<td>When omitted</td>
<td>5 MHz BW (E-UTRA 5 MHz)</td>
</tr>
</tbody>
</table>

When Standard set to LTE TDD Uplink (ACP measurement)

<table>
<thead>
<tr>
<th>Parameter</th>
<th>Description</th>
</tr>
</thead>
<tbody>
<tr>
<td>1M4BW_UTRA1M6HZ</td>
<td>1.4 MHz BW (UTRA 1.6 MHz)</td>
</tr>
<tr>
<td>1M4BW_EUTRA1M4HZ</td>
<td>1.4 MHz BW (E-UTRA 1.4 MHz)</td>
</tr>
<tr>
<td>3MBW_UTRA1M6HZ</td>
<td>3 MHz BW (UTRA 1.6 MHz)</td>
</tr>
<tr>
<td>3MBW_EUTRA3MHZ</td>
<td>3 MHz BW (E-UTRA 3 MHz)</td>
</tr>
<tr>
<td>5MBW_UTRA1M6HZ</td>
<td>5 MHz BW (UTRA 1.6 MHz)</td>
</tr>
<tr>
<td>5MBW_EUTRA5MHZ</td>
<td>5 MHz BW (E-UTRA 5 MHz)</td>
</tr>
<tr>
<td>10MBW_UTRA1M6HZ</td>
<td>10 MHz BW (UTRA 1.6 MHz)</td>
</tr>
<tr>
<td>10MBW_EUTRA10MHZ</td>
<td>10 MHz BW (E-UTRA 10 MHz)</td>
</tr>
<tr>
<td>15MBW_UTRA1M6HZ</td>
<td>15 MHz BW (UTRA 1.6 MHz)</td>
</tr>
<tr>
<td>15MBW_EUTRA15MHZ</td>
<td>15 MHz BW (E-UTRA 15 MHz)</td>
</tr>
<tr>
<td>20MBW_UTRA1M6HZ</td>
<td>20 MHz BW (UTRA 1.6 MHz)</td>
</tr>
<tr>
<td>20MBW_EUTRA20MHZ</td>
<td>20 MHz BW (E-UTRA 20 MHz)</td>
</tr>
<tr>
<td>When omitted</td>
<td>1.4 MHz BW (UTRA 1.6 MHz)</td>
</tr>
</tbody>
</table>

When Standard set to LTE Uplink/Downlink, LTE TDD Uplink/Downlink (OBW measurement)

<table>
<thead>
<tr>
<th>Parameter</th>
<th>Description</th>
</tr>
</thead>
<tbody>
<tr>
<td>1M4BW</td>
<td>1.4 MHz Bandwidth</td>
</tr>
<tr>
<td>3MBW</td>
<td>3 MHz Bandwidth</td>
</tr>
<tr>
<td>5MBW</td>
<td>5 MHz Bandwidth</td>
</tr>
<tr>
<td>10MBW</td>
<td>10 MHz Bandwidth</td>
</tr>
<tr>
<td>15MBW</td>
<td>15 MHz Bandwidth</td>
</tr>
<tr>
<td>20MBW</td>
<td>20 MHz Bandwidth</td>
</tr>
<tr>
<td>When omitted</td>
<td>5 MHz Bandwidth</td>
</tr>
</tbody>
</table>

When Standard set to LTE Uplink/Downlink, LTE TDD Uplink/Downlink (Channel Power measurement)

<table>
<thead>
<tr>
<th>Parameter</th>
<th>Description</th>
</tr>
</thead>
<tbody>
<tr>
<td>MEAN_1M4BW</td>
<td>Mean Power 1.4 MHz BW</td>
</tr>
<tr>
<td>MEAN_3MBW</td>
<td>Mean Power 3 MHz BW</td>
</tr>
<tr>
<td>MEAN_5MBW</td>
<td>Mean Power 5 MHz BW</td>
</tr>
<tr>
<td>MEAN_10MBW</td>
<td>Mean Power 10 MHz BW</td>
</tr>
<tr>
<td>MEAN_15MBW</td>
<td>Mean Power 15 MHz BW</td>
</tr>
<tr>
<td>MEAN_20MBW</td>
<td>Mean Power 20 MHz BW</td>
</tr>
<tr>
<td>FILTERED_1M4BW</td>
<td>Filtered Power 1.4 MHz BW</td>
</tr>
<tr>
<td>FILTERED_3MBW</td>
<td>Filtered Power 3 MHz BW</td>
</tr>
<tr>
<td>FILTERED_5MBW</td>
<td>Filtered Power 5 MHz BW</td>
</tr>
<tr>
<td>FILTERED_10MBW</td>
<td>Filtered Power 10 MHz BW</td>
</tr>
<tr>
<td>FILTERED_15MBW</td>
<td>Filtered Power 15 MHz BW</td>
</tr>
</tbody>
</table>
FILTERED_20MBW
Filtered Power 20 MHz BW
When omitted:
Mean Power 5 MHz BW

When Standard set to LTE Uplink/Downlink, LTE TDD Uplink/Downlink
(Burst Average Power measurement)
(pattern)

Parameter to set
MEAN_1M4BW
Mean Power 1.4 MHz BW
MEAN_3MBW
Mean Power 3 MHz BW
MEAN_5MBW
Mean Power 5 MHz BW
MEAN_10MBW
Mean Power 10 MHz BW
When omitted
Mean Power 5 MHz BW

When Standard set to LTE Downlink (Spectrum Emission Mask
measurement)
(pattern)

Parameter to set
A_UNDER1G_1M4BW
CategoryA < 1 GHz 1.4 MHz BW
A_UNDER1G_3MBW
CategoryA < 1 GHz 3 MHz BW
A_UNDER1G_5MBW
CategoryA < 1 GHz 5 MHz BW
A_UNDER1G_10MBW
CategoryA < 1 GHz 10 MHz BW
A_UNDER1G_15MBW
CategoryA < 1 GHz 15 MHz BW
A_UNDER1G_20MBW
CategoryA < 1 GHz 20 MHz BW
A_OVER1G_1M4BW
CategoryA > 1 GHz 1.4 MHz BW
A_OVER1G_3MBW
CategoryA > 1 GHz 3 MHz BW
A_OVER1G_5MBW
CategoryA > 1 GHz 5 MHz BW
A_OVER1G_10MBW
CategoryA > 1 GHz 10 MHz BW
A_OVER1G_15MBW
CategoryA > 1 GHz 15 MHz BW
A_OVER1G_20MBW
CategoryA > 1 GHz 20 MHz BW
B_UNDER1G_1M4BW
CategoryB < 1 GHz 1.4 MHz BW
B_UNDER1G_3MBW
CategoryB < 1 GHz 3 MHz BW
B_UNDER1G_5MBW
CategoryB < 1 GHz 5 MHz BW
B_UNDER1G_10MBW
CategoryB < 1 GHz 10 MHz BW
B_UNDER1G_15MBW
CategoryB < 1 GHz 15 MHz BW
B_UNDER1G_20MBW
CategoryB < 1 GHz 20 MHz BW
B_OVER1G_1M4BW
CategoryB > 1 GHz 1.4 MHz BW
B_OVER1G_3MBW
CategoryB > 1 GHz 3 MHz BW
B_OVER1G_5MBW
CategoryB > 1 GHz 5 MHz BW
B_OVER1G_10MBW
CategoryB > 1 GHz 10 MHz BW
B_OVER1G_15MBW
CategoryB > 1 GHz 15 MHz BW
B_OVER1G_20MBW
CategoryB > 1 GHz 20 MHz BW
When omitted
CategoryA > 1 GHz 5 MHz BW
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**Note:**

- **<1GHz**: BandClass when frequency smaller than 1 GHz. Band Class 5, 6, 8, 12, 13, 14, 17

- **>1GHz**: BandClass when frequency larger than 1 GHz. 1, 2, 3, 4, 7, 9, 10, 11

When Standard is set to LTE Uplink (Spectrum Emission Mask measurement):

<table>
<thead>
<tr>
<th>pattern</th>
<th>Parameter to set</th>
</tr>
</thead>
<tbody>
<tr>
<td>G_1_4M</td>
<td>General 1.4 MHz</td>
</tr>
<tr>
<td>G_3M</td>
<td>General 3 MHz</td>
</tr>
<tr>
<td>G_5M</td>
<td>General 5 MHz</td>
</tr>
<tr>
<td>G_10M</td>
<td>General 10 MHz</td>
</tr>
<tr>
<td>G_15M</td>
<td>General 15 MHz</td>
</tr>
<tr>
<td>G_20M</td>
<td>General 20 MHz</td>
</tr>
<tr>
<td>NS3_1_4M</td>
<td>NS-03 1.4 MHz</td>
</tr>
<tr>
<td>NS3_3M</td>
<td>NS-03 3 MHz</td>
</tr>
<tr>
<td>NS3_5M</td>
<td>NS-03 5 MHz</td>
</tr>
<tr>
<td>NS3_10M</td>
<td>NS-03 10 MHz</td>
</tr>
<tr>
<td>NS3_15M</td>
<td>NS-03 15 MHz</td>
</tr>
<tr>
<td>NS3_20M</td>
<td>NS-03 20 MHz</td>
</tr>
<tr>
<td>NS4_1_4M</td>
<td>NS-04 1.4 MHz</td>
</tr>
<tr>
<td>NS4_3M</td>
<td>NS-04 3 MHz</td>
</tr>
<tr>
<td>NS4_5M</td>
<td>NS-04 5 MHz</td>
</tr>
<tr>
<td>NS4_10M</td>
<td>NS-04 10 MHz</td>
</tr>
<tr>
<td>NS4_15M</td>
<td>NS-04 15 MHz</td>
</tr>
<tr>
<td>NS4_20M</td>
<td>NS-04 20 MHz</td>
</tr>
<tr>
<td>NS6_1_4M</td>
<td>NS-06/07 1.4 MHz</td>
</tr>
<tr>
<td>NS6_3M</td>
<td>NS-06/07 3 MHz</td>
</tr>
<tr>
<td>NS6_5M</td>
<td>NS-06/07 5 MHz</td>
</tr>
<tr>
<td>NS6_10M</td>
<td>NS-06/07 10 MHz</td>
</tr>
<tr>
<td>JAPAN_5M</td>
<td>JAPAN 5 MHz</td>
</tr>
<tr>
<td>JAPAN_10M</td>
<td>JAPAN 10 MHz</td>
</tr>
<tr>
<td>JAPAN_15M</td>
<td>JAPAN 15 MHz</td>
</tr>
<tr>
<td>JAPAN_20M</td>
<td>JAPAN 20 MHz</td>
</tr>
<tr>
<td>When omitted</td>
<td>General 5 MHz</td>
</tr>
</tbody>
</table>
## Chapter 4  Native Device Message Details

When Standard is set to LTE TDD Uplink (Spectrum Emission Mask measurement)

<table>
<thead>
<tr>
<th>Parameter to be set</th>
<th>Pattern</th>
</tr>
</thead>
<tbody>
<tr>
<td>General 1.4 MHz</td>
<td>G_1_4M</td>
</tr>
<tr>
<td>General 3 MHz</td>
<td>G_3M</td>
</tr>
<tr>
<td>General 5 MHz</td>
<td>G_5M</td>
</tr>
<tr>
<td>General 10 MHz</td>
<td>G_10M</td>
</tr>
<tr>
<td>General 15 MHz</td>
<td>G_15M</td>
</tr>
<tr>
<td>General 20 MHz</td>
<td>G_20M</td>
</tr>
<tr>
<td>NS-03 1.4 MHz</td>
<td>NS3_1_4M</td>
</tr>
<tr>
<td>NS-03 3 MHz</td>
<td>NS3_3M</td>
</tr>
<tr>
<td>NS-03 5 MHz</td>
<td>NS3_5M</td>
</tr>
<tr>
<td>NS-03 10 MHz</td>
<td>NS3_10M</td>
</tr>
<tr>
<td>NS-03 15 MHz</td>
<td>NS3_15M</td>
</tr>
<tr>
<td>NS-03 20 MHz</td>
<td>NS3_20M</td>
</tr>
<tr>
<td>NS-04 1.4 MHz</td>
<td>NS4_1_4M</td>
</tr>
<tr>
<td>NS-04 3 MHz</td>
<td>NS4_3M</td>
</tr>
<tr>
<td>NS-04 5 MHz</td>
<td>NS4_5M</td>
</tr>
<tr>
<td>NS-04 10 MHz</td>
<td>NS4_10M</td>
</tr>
<tr>
<td>NS-04 15 MHz</td>
<td>NS4_15M</td>
</tr>
<tr>
<td>NS-04 20 MHz</td>
<td>NS4_20M</td>
</tr>
<tr>
<td>NS-06/07 1.4 MHz</td>
<td>NS6_1_4M</td>
</tr>
<tr>
<td>NS-06/07 3 MHz</td>
<td>NS6_3M</td>
</tr>
<tr>
<td>NS-06/07 5 MHz</td>
<td>NS6_5M</td>
</tr>
<tr>
<td>NS-06/07 10 MHz</td>
<td>NS6_10M</td>
</tr>
</tbody>
</table>

When omitted General 5 MHz

When Standard is set to ETC_DSRC (Applies to all but Burst Average Power, Spectrum Emission Mask measurement)

<table>
<thead>
<tr>
<th>Parameter to be set</th>
<th>Pattern</th>
</tr>
</thead>
<tbody>
<tr>
<td>(\pi/4)DQPSK</td>
<td>PI4DQPSK</td>
</tr>
<tr>
<td>ASK</td>
<td>ASK</td>
</tr>
</tbody>
</table>

When omitted \(\pi/4\)DQPSK

When Standard is set to ETC_DSRC (Burst Average Power measurement)

<table>
<thead>
<tr>
<th>Parameter to be set</th>
<th>Pattern</th>
</tr>
</thead>
<tbody>
<tr>
<td>Mean Power</td>
<td>MEAN</td>
</tr>
</tbody>
</table>

When omitted Mean Power
Chapter 4  Native Device Message Details

When Standard is set to TD-SCDMA (ACP Measurement)
Parameter to be set
TDD128M1C  Single Carrier
TDD128M2C  2 Carriers
TDD128M3C  3 Carriers
TDD128M4C  4 Carriers
TDD128M5C  5 Carriers
TDD128M6C  6 Carriers
When omitted  Single Carrier

When Standard is set to TD-SCDMA (CHP,OBW Measurement)
Parameter to be set
TDD128M  3GPP TDD 1.28 Mcps Option
When omitted  3GPP TDD 1.28 Mcps Option

When Standard is set to TD-SCDMA (Burst Average Power Measurement)
Parameter to be set
MEAN  5 ms Subframe (Power measurement of 1 subframe)
When omitted  5 ms Subframe

When Standard is set to TD-SCDMA (Spectrum Emission Mask Measurement)
Parameter to be set
DLT34  DL Trace Point Tune 34 dBm≤P
DLT26  DL Trace Point Tune 26 dBm≤P<34 dBm
DLT26U  DL Trace Point Tune P<26 dBm
ULT53  UL Trace Point Tune -53.5 dBm≤P
ULT55  UL Trace Point Tune -55 dBm≤P
DL34  Downlink Actual 34 dBm≤P
DL26  Downlink Actual 26 dBm≤P<34 dBm
DL26U  Downlink Actual P<26 dBm
UL53  Uplink Actual -53.5 dBm≤P
UL55  Uplink Actual -55 dBm≤P
DLF34  Downlink Fast 34 dBm≤P
DLF26  Downlink Fast 26 dBm≤P<34 dBm
DLF26U  Downlink Fast P<26 dBm
ULF53  Uplink Fast -53.5 dBm≤P
ULF55  Uplink Fast -55 dBm≤P
When omitted  DL Trace Point Tune 34 dBm≤P
### Chapter 4  Native Device Message Details

When Standard is set to XG-PHS (OBW Measurement)

<table>
<thead>
<tr>
<th>Parameter to be set</th>
<th>Value</th>
</tr>
</thead>
<tbody>
<tr>
<td>10MBW</td>
<td>10 MHz BW</td>
</tr>
<tr>
<td>20MBW</td>
<td>20 MHz BW</td>
</tr>
<tr>
<td>When omitted</td>
<td>10 MHz BW</td>
</tr>
</tbody>
</table>

When Standard is set to XG-PHS (CHP Measurement)

<table>
<thead>
<tr>
<th>Parameter to be set</th>
<th>Value</th>
</tr>
</thead>
<tbody>
<tr>
<td>MEAN_10MBW</td>
<td>Mean Power 10 MHz BW</td>
</tr>
<tr>
<td>MEAN_20MBW</td>
<td>Mean Power 20 MHz BW</td>
</tr>
<tr>
<td>When omitted</td>
<td>Mean Power 10 MHz BW</td>
</tr>
</tbody>
</table>

When Standard is set to XG-PHS (Spectrum Emission Mask Measurement)

<table>
<thead>
<tr>
<th>Parameter to be set</th>
<th>Value</th>
</tr>
</thead>
<tbody>
<tr>
<td>BS_10MBW</td>
<td>Base station channel interval: 10 MHz</td>
</tr>
<tr>
<td>UE_10MBW</td>
<td>Mobile station channel interval: 10 MHz</td>
</tr>
<tr>
<td>When omitted</td>
<td>Base station channel interval: 10 MHz</td>
</tr>
</tbody>
</table>

When Standard set to CDMA2000 Forward Link (ACP, Burst Average, Channel Power, OBW measurement)

<table>
<thead>
<tr>
<th>Parameter to set</th>
<th>Value</th>
</tr>
</thead>
<tbody>
<tr>
<td>CDMA2KFWD</td>
<td>CDMA2000 Forward Link</td>
</tr>
<tr>
<td>When omitted</td>
<td>CDMA2000 Forward Link</td>
</tr>
</tbody>
</table>

When Standard set to CDMA2000 Forward Link (Spectrum Emission Mask setting)

<table>
<thead>
<tr>
<th>Parameter to set</th>
<th>Value</th>
</tr>
</thead>
<tbody>
<tr>
<td>BC0_PLT28</td>
<td>Band Class 0,2,5,7,9,10 (Pout&lt;28 dBm)</td>
</tr>
<tr>
<td>BC0_PLT33</td>
<td>Band Class 0,2,5,7,9,10 (28 dBm≤Pout&lt;33 dBm)</td>
</tr>
<tr>
<td>BC0_PGT33</td>
<td>Band Class 0,2,5,7,9,10 (Pout≥33 dBm)</td>
</tr>
<tr>
<td>BC1_PLT28</td>
<td>Band Class 1,4,8,14,15 (Pout&lt;28 dBm)</td>
</tr>
<tr>
<td>BC1_PLT33</td>
<td>Band Class 1,4,8,14,15 (28 dBm≤Pout&lt;33 dBm)</td>
</tr>
<tr>
<td>BC1_PGT33</td>
<td>Band Class 1,4,8,14,15 (Pout≥33 dBm)</td>
</tr>
<tr>
<td>BC6</td>
<td>Band Class 6 (Pout&lt;28 dBm)</td>
</tr>
<tr>
<td>BC6_PLT33</td>
<td>Band Class 6 (28 dBm≤Pout&lt;33 dBm)</td>
</tr>
<tr>
<td>BC6_PGT33</td>
<td>Band Class 6 (Pout≥33 dBm)</td>
</tr>
<tr>
<td>BC11</td>
<td>Band Class 11,12</td>
</tr>
<tr>
<td>When omitted</td>
<td>Band Class 0,2,5,7,9,10 (Pout&lt;28 dBm)</td>
</tr>
</tbody>
</table>
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When Standard set to EV-DO Forward Link (ACP, Burst Average, Channel Power, OBW measurement)

<table>
<thead>
<tr>
<th>pattern</th>
<th>Parameter to set</th>
</tr>
</thead>
<tbody>
<tr>
<td>EVDOFWD</td>
<td>EV-DO Forward Link</td>
</tr>
<tr>
<td>When omitted</td>
<td>EV-DO Forward Link</td>
</tr>
</tbody>
</table>

When Standard set to EV-DO Forward Link (Spectrum Emission Mask measurement)

<table>
<thead>
<tr>
<th>pattern</th>
<th>Parameter to set</th>
</tr>
</thead>
<tbody>
<tr>
<td>BC0</td>
<td>Band Class 0,2,5,7,9,10</td>
</tr>
<tr>
<td>BC1</td>
<td>Band Class 1,4,14,15</td>
</tr>
<tr>
<td>BC6</td>
<td>Band Class 6,8,13</td>
</tr>
<tr>
<td>BC11</td>
<td>Band Class 11,12</td>
</tr>
<tr>
<td>When omitted</td>
<td>Band Class 0,2,5,7,9,10</td>
</tr>
</tbody>
</table>

When Standard is set to ISDB-Tmm (Channel Power measurement)

<table>
<thead>
<tr>
<th>pattern</th>
<th>Parameter to set</th>
</tr>
</thead>
<tbody>
<tr>
<td>MEAN_14M2BW</td>
<td>14.2 MHz BW</td>
</tr>
<tr>
<td>MEAN_5M6BW</td>
<td>5.6 MHz BW</td>
</tr>
<tr>
<td>When omitted</td>
<td>14.2 MHz BW</td>
</tr>
</tbody>
</table>

When Standard is set to ISDB-Tmm (OBW measurement)

<table>
<thead>
<tr>
<th>pattern</th>
<th>Parameter to set</th>
</tr>
</thead>
<tbody>
<tr>
<td>14M2BW</td>
<td>14.2 MHz BW</td>
</tr>
<tr>
<td>5M6BW</td>
<td>5.6 MHz BW</td>
</tr>
<tr>
<td>When omitted</td>
<td>14.2 MHz BW</td>
</tr>
</tbody>
</table>

When Standard is set to ISDB-Tmm (Spectrum Emission Mask measurement)

<table>
<thead>
<tr>
<th>pattern</th>
<th>Parameter to set</th>
</tr>
</thead>
<tbody>
<tr>
<td>14M2BW</td>
<td>14.2 MHz BW</td>
</tr>
<tr>
<td>14M2BW_ABS</td>
<td>14.2 MHz BW (ABS)</td>
</tr>
<tr>
<td>5M6BW</td>
<td>5.6 MHz BW</td>
</tr>
<tr>
<td>When omitted</td>
<td>14.2 MHz BW</td>
</tr>
</tbody>
</table>

When Standard is set to ISDB-TSB (Channel Power measurement)

<table>
<thead>
<tr>
<th>pattern</th>
<th>Parameter to set</th>
</tr>
</thead>
<tbody>
<tr>
<td>MEAN_3M9BW</td>
<td>3.9 MHz BW</td>
</tr>
<tr>
<td>When omitted</td>
<td>3.9 MHz BW</td>
</tr>
</tbody>
</table>

When Standard is set to ISDB-TSB (OBW measurement)

<table>
<thead>
<tr>
<th>pattern</th>
<th>Parameter to set</th>
</tr>
</thead>
<tbody>
<tr>
<td>3M9BW</td>
<td>3.9 MHz BW</td>
</tr>
<tr>
<td>When omitted</td>
<td>3.9 MHz BW</td>
</tr>
</tbody>
</table>
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When Standard is set to ISDB-T<sub>SB</sub> (Spectrum Emission Mask measurement)

<table>
<thead>
<tr>
<th>pattern</th>
<th>Parameter to set</th>
<th>3M9BW</th>
<th>3.9 MHz BW</th>
</tr>
</thead>
<tbody>
<tr>
<td>When omitted</td>
<td></td>
<td>3.9 MHz BW</td>
<td></td>
</tr>
</tbody>
</table>

When Standard is set to ISDB-T (Channel Power measurement)

<table>
<thead>
<tr>
<th>pattern</th>
<th>Parameter to set</th>
<th>MEAN_5M6BW</th>
<th>5.6 MHz BW</th>
</tr>
</thead>
<tbody>
<tr>
<td>When omitted</td>
<td></td>
<td>5.6 MHz BW</td>
<td></td>
</tr>
</tbody>
</table>

When Standard is set to ISDB-T (OBW measurement)

<table>
<thead>
<tr>
<th>pattern</th>
<th>Parameter to set</th>
<th>5M6BW</th>
<th>5.6 MHz BW</th>
</tr>
</thead>
<tbody>
<tr>
<td>When omitted</td>
<td></td>
<td>5.6 MHz BW</td>
<td></td>
</tr>
</tbody>
</table>

When Standard is set to ISDB-T (Spectrum Emission Mask measurement)

<table>
<thead>
<tr>
<th>pattern</th>
<th>Parameter to set</th>
<th>5M6BW</th>
<th>5.6 MHz BW</th>
</tr>
</thead>
<tbody>
<tr>
<td>When omitted</td>
<td></td>
<td>5.6 MHz BW</td>
<td></td>
</tr>
</tbody>
</table>

When Standard is set to WLAN (ACP measurement)

<table>
<thead>
<tr>
<th>pattern</th>
<th>Parameter to set</th>
<th>T403_18MSPAN</th>
<th>TELEC T-403 5 GHz Low Power Data Communication System Sweep Band 18 MHz</th>
</tr>
</thead>
<tbody>
<tr>
<td>T403_19MSPAN</td>
<td></td>
<td>TELEC T-403 5 GHz Low Power Data Communication System Sweep Band 19 MHz</td>
<td></td>
</tr>
<tr>
<td>T403_38MSPAN</td>
<td></td>
<td>TELEC T-403 5 GHz Low Power Data Communication System Sweep Band 38 MHz</td>
<td></td>
</tr>
<tr>
<td>T403_78MSPAN</td>
<td></td>
<td>TELEC T-403 5 GHz Low Power Data Communication System Sweep Band 78 MHz</td>
<td></td>
</tr>
<tr>
<td>T405_20MBW</td>
<td></td>
<td>TELEC T-405 5 GHz Wireless Access System 20 MHz System</td>
<td></td>
</tr>
<tr>
<td>T405_40MBW</td>
<td></td>
<td>TELEC T-405 5 GHz Wireless Access System 40 MHz System</td>
<td></td>
</tr>
<tr>
<td>When omitted</td>
<td></td>
<td>TELEC T-403 5 GHz Low Power Data Communication System Sweep Band 18 MHz</td>
<td></td>
</tr>
</tbody>
</table>

When Standard is set to WLAN (OBW measurement)

| pattern | Parameter to set | T401_DCCK | TELEC T-401 2.4 GHz Enhanced Low Power Data Communication System, Direct Sequence Spread Spectrum System |
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<table>
<thead>
<tr>
<th>Code</th>
<th>Description</th>
</tr>
</thead>
<tbody>
<tr>
<td>T401_OFDM</td>
<td>TELEC T-401 2.4 GHz Enhanced Low Power Data Communication System, Orthogonal Frequency Division Multiplexing System</td>
</tr>
<tr>
<td>T403_20MBW</td>
<td>TELEC T-403 5 GHz Low Power Data Communication System 20 MHz System</td>
</tr>
<tr>
<td>T403_40MBW</td>
<td>TELEC T-403 5 GHz Low Power Data Communication System 40 MHz System</td>
</tr>
<tr>
<td>T403_80MBW</td>
<td>TELEC T-403 5 GHz Low Power Data Communication System 80 MHz System</td>
</tr>
<tr>
<td>T403_160MBW</td>
<td>TELEC T-403 5 GHz Low Power Data Communication System 160 MHz System</td>
</tr>
<tr>
<td>T405_20MBW</td>
<td>TELEC T-405 5 GHz Wireless Access System 20 MHz System</td>
</tr>
<tr>
<td>T405_40MBW</td>
<td>TELEC T-405 5 GHz Wireless Access System 40 MHz System</td>
</tr>
<tr>
<td>ETSI_OFDM_5MHZ</td>
<td>EN 301 893 4.3 Nominal Channel Bandwidth and Occupied Channel Bandwidth 5 MHz</td>
</tr>
<tr>
<td>ETSI_OFDM_10MHZ</td>
<td>EN 301 893 4.3 Nominal Channel Bandwidth and Occupied Channel Bandwidth 10 MHz</td>
</tr>
<tr>
<td>ETSI_OFDM_20MHZ</td>
<td>EN 301 893 4.3 Nominal Channel Bandwidth and Occupied Channel Bandwidth 20 MHz</td>
</tr>
<tr>
<td>ETSI_OFDM_40MHZ</td>
<td>EN 301 893 4.3 Nominal Channel Bandwidth and Occupied Channel Bandwidth 40 MHz</td>
</tr>
</tbody>
</table>

When omitted
TELEC T-401 2.4 GHz Enhanced Low Power Data Communication System, Direct Sequence Spread Spectrum System

When Standard is set to WLAN (Spectrum Emission Mask measurement)

<table>
<thead>
<tr>
<th>Pattern</th>
<th>Parameter to set</th>
</tr>
</thead>
<tbody>
<tr>
<td>W11A</td>
<td>IEEE802.11a</td>
</tr>
<tr>
<td>W11B</td>
<td>IEEE802.11b</td>
</tr>
<tr>
<td>W11GOFDM</td>
<td>IEEE802.11g OFDM</td>
</tr>
<tr>
<td>W11GDCC</td>
<td>IEEE802.11g DSSS/CCK</td>
</tr>
<tr>
<td>W11GDOFDM</td>
<td>IEEE802.11g DSSS-OFDM</td>
</tr>
<tr>
<td>W11J20MHZ</td>
<td>IEEE802.11j 20 MHz</td>
</tr>
<tr>
<td>W11P20MHZ</td>
<td>IEEE802.11p 20 MHz</td>
</tr>
<tr>
<td>W11N20MHZ</td>
<td>IEEE802.11n 20 MHz(2.4 GHz)</td>
</tr>
<tr>
<td>W11N20MHZ5GHZ</td>
<td>IEEE802.11n 20 MHz(5 GHz)</td>
</tr>
<tr>
<td>W11N40MHZ</td>
<td>IEEE802.11n 40 MHz(2.4 GHz)</td>
</tr>
<tr>
<td>W11N40MHZ5GHZ</td>
<td>IEEE802.11n 40 MHz(5 GHz)</td>
</tr>
<tr>
<td>W11AC20MHZ</td>
<td>IEEE802.11ac 20 MHz</td>
</tr>
<tr>
<td>W11AC40MHZ</td>
<td>IEEE802.11ac 40 MHz</td>
</tr>
<tr>
<td>W11AC80MHZ</td>
<td>IEEE802.11ac 80 MHz</td>
</tr>
<tr>
<td>Device Type</td>
<td>Standard/Specification</td>
</tr>
<tr>
<td>-------------</td>
<td>------------------------</td>
</tr>
<tr>
<td>W11AC160MHZ</td>
<td>IEEE802.11ac 160 MHz</td>
</tr>
<tr>
<td>ETSI_OFDM_5MHZ</td>
<td>EN 301 893 4.5.2 Transmitter unwanted emissions within the 5 GHz RLAN bands 5 MHz</td>
</tr>
<tr>
<td>ETSI_OFDM_10MHZ</td>
<td>EN 301 893 4.5.2 Transmitter unwanted emissions within the 5 GHz RLAN bands 10 MHz</td>
</tr>
<tr>
<td>ETSI_OFDM_20MHZ</td>
<td>EN 301 893 4.5.2 Transmitter unwanted emissions within the 5 GHz RLAN bands 20 MHz</td>
</tr>
<tr>
<td>ETSI_OFDM_40MHZ</td>
<td>EN 301 893 4.5.2 Transmitter unwanted emissions within the 5 GHz RLAN bands 40 MHz</td>
</tr>
<tr>
<td>T403_18MHZ_5180_5240MHZ_LOWER</td>
<td>TELEC T-403 5 GHz Low Power Data Communication System 5180 to 5240 MHz Lower sideband, OBW less than 18 MHz</td>
</tr>
<tr>
<td>T403_18MHZ_5180_5240MHZ_UPPER</td>
<td>TELEC T-403 5 GHz Low Power Data Communication System 5180 to 5240 MHz Upper sideband, OBW less than 18 MHz</td>
</tr>
<tr>
<td>T403_18MHZ_5260_5320MHZ_LOWER</td>
<td>TELEC T-403 5 GHz Low Power Data Communication System 5180 to 5240 MHz Lower sideband, OBW less than 18 MHz</td>
</tr>
<tr>
<td>T403_18MHZ_5260_5320MHZ_UPPER</td>
<td>TELEC T-403 5 GHz Low Power Data Communication System 5260 to 5320 MHz Upper sideband, OBW more than 18 MHz, less than 19 MHz</td>
</tr>
<tr>
<td>T403_18_19MHZ_5180_5240MHZ_LOWER</td>
<td>TELEC T-403 5 GHz Low Power Data Communication System 5180 to 5240 MHz Lower sideband, OBW more than 18 MHz, less than 19 MHz</td>
</tr>
<tr>
<td>T403_18_19MHZ_5180_5240MHZ_UPPER</td>
<td>TELEC T-403 5 GHz Low Power Data Communication System</td>
</tr>
</tbody>
</table>
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5180 to 5240 MHz Upper sideband,  
OBW more than 18 MHz, less than 19 MHz

T403_18_19MHZ_5260_5320MHZ_LOWER  
TELEC T-403 5 GHz Low Power Data Communication System  
5260 to 5320 MHz Lower sideband,  
OBW more than 18 MHz, less than 19 MHz

T403_18_19MHZ_5260_5320MHZ_UPPER  
TELEC T-403 5 GHz Low Power Data Communication System  
5260 to 5320 MHz Upper sideband,  
OBW more than 18 MHz, less than 19 MHz

T403_5190_5230MHZ_LOWER  
TELEC T-403 5 GHz Low Power Data Communication System  
5190 to 5230 MHz Lower sideband

T403_5190_5230MHZ_UPPER  
TELEC T-403 5 GHz Low Power Data Communication System  
5190 to 5230 MHz Upper sideband

T403_5270_5310MHZ_LOWER  
TELEC T-403 5 GHz Low Power Data Communication System  
5270 to 5310 MHz Lower sideband

T403_5270_5310MHZ_UPPER  
TELEC T-403 5 GHz Low Power Data Communication System  
5270 to 5310 MHz Upper sideband

T403_5210MHZ_LOWER  
TELEC T-403 5 GHz Low Power Data Communication System  
5210 MHz Lower sideband

T403_5210MHZ_UPPER  
TELEC T-403 5 GHz Low Power Data Communication System  
5210 MHz Upper sideband

T403_5290MHZ_LOWER  
TELEC T-403 5 GHz Low Power Data Communication System  
5290 MHz Lower sideband

T403_5290MHZ_UPPER  
TELEC T-403 5 GHz Low Power Data Communication System  
5290 MHz Upper sideband
Chapter 4  Native Device Message Details

T403_5250MHZ_LOWER
TELEC T-403 5 GHz Low Power Data Communication System
5250 MHz Lower sideband

T403_5250MHZ_UPPER
TELEC T-403 5 GHz Low Power Data Communication System
5250 MHz Lower sideband

T403_5210MHZ_80-80_LOWER
TELEC T-403 5 GHz Low Power Data Communication System
5210 MHz 80+80 MHz Lower sideband

T403_5210MHZ_80-80_UPPER
TELEC T-403 5 GHz Low Power Data Communication System
5210 MHz 80+80 MHz Upper sideband

T403_5210_5530MHZ_LOWER
TELEC T-403 5 GHz Low Power Data Communication System
5210 to 5530 MHz Lower sideband

T403_5210_5610MHZ_UPPER
TELEC T-403 5 GHz Low Power Data Communication System
5210 to 5610 MHz Upper sideband

T403_5290MHZ_80-80_LOWER
TELEC T-403 5 GHz Low Power Data Communication System
5290 MHz 80+80 MHz Lower sideband

T403_5290MHZ_80-80_UPPER
TELEC T-403 5 GHz Low Power Data Communication System
5290 MHz 80+80 MHz Upper sideband

T403_5290_5530MHZ_LOWER
TELEC T-403 5 GHz Low Power Data Communication System
5290 to 5530 MHz Lower sideband

T403_5290_5610MHZ_UPPER
TELEC T-403 5 GHz Low Power Data Communication System
5290 to 5610 MHz Upper sideband

When omitted W11A

When Standard is set to WLAN (Spurious Emission measurement) pattern Parameter to set
### Chapter 4  Native Device Message Details

<table>
<thead>
<tr>
<th>Model</th>
<th>Description</th>
</tr>
</thead>
<tbody>
<tr>
<td>T401</td>
<td>TELEC T-401 2.4 GHz Enhanced Low Power Data Communication System</td>
</tr>
<tr>
<td>T402</td>
<td>TELEC T-402 2.4 GHz Low Power Data Communication System</td>
</tr>
<tr>
<td>T403_18MHz_5_2GHz</td>
<td>TELEC T-403 5 GHz Low Power Data Communication System 5.2 GHz OBW less than 18 MHz</td>
</tr>
<tr>
<td>T403_18MHz_5_3GHz</td>
<td>TELEC T-403 5 GHz Low Power Data Communication System 5.3 GHz OBW less than 18 MHz</td>
</tr>
<tr>
<td>T403_18MHz_5_6GHz</td>
<td>TELEC T-403 5 GHz Low Power Data Communication System 5.6 GHz OBW less than 18 MHz</td>
</tr>
<tr>
<td>T403_18_19MHz_5_2GHz</td>
<td>TELEC T-403 5 GHz Low Power Data Communication System 5.2 GHz OBW more than 18 MHz, less than 19 MHz</td>
</tr>
<tr>
<td>T403_18_19MHz_5_3GHz</td>
<td>TELEC T-403 5 GHz Low Power Data Communication System 5.3 GHz OBW more than 18 MHz, less than 19 MHz</td>
</tr>
<tr>
<td>T403_18_19MHz_5_6GHz</td>
<td>TELEC T-403 5 GHz Low Power Data Communication System 5.6 GHz OBW more than 18 MHz, less than 19 MHz</td>
</tr>
<tr>
<td>T403_19MHz_5_2GHz</td>
<td>TELEC T-403 5 GHz Low Power Data Communication System 5.2 GHz OBW more than 19 MHz</td>
</tr>
<tr>
<td>T403_19MHz_5_3GHz</td>
<td>TELEC T-403 5 GHz Low Power Data Communication System 5.3 GHz OBW more than 19 MHz</td>
</tr>
<tr>
<td>T403_19MHz_5_6GHz</td>
<td>TELEC T-403 5 GHz Low Power Data Communication System 5.6 GHz OBW more than 19 MHz</td>
</tr>
<tr>
<td>T403_38_78MHz_5_2GHz</td>
<td>TELEC T-403 5 GHz Low Power Data Communication System 5.2 GHz OBW more than 38 MHz, less than 78 MHz</td>
</tr>
</tbody>
</table>
Chapter 4  Native Device Message Details

T403_38_78MHz_5_3GHz
    TELEC T-403 5 GHz Low Power Data
    Communication System 5.3 GHz OBW more
    than 38 MHz, less than 78 MHz

T403_38_78MHz_5_6GHz
    TELEC T-403 5 GHz Low Power Data
    Communication System 5.6 GHz OBW more
    than 38 MHz, less than 78 MHz

T403_78MHz_5_2GHZ_5_3GHZ
    TELEC T-403 5 GHz Low Power Data
    Communication System 5.2 GHz, 5.3 GHz OBW
    more than 78 MHz

T403_78MHz_5_6GHz
    TELEC T-403 5 GHz Low Power Data
    Communication System 5.6 GHz OBW more
    than 38 MHz

T403_5500_5700M
    TELEC T-403 5 GHz Low Power Data
    Communication System, 5500 to 5700 MHz

T403_5510_5670M
    TELEC T-403 5 GHz Low Power Data
    Communication System, 5510 to 5670 MHz

T403_5530_5610M
    TELEC T-403 5 GHz Low Power Data
    Communication System, 5530 to 5610 MHz

T403_5570M
    TELEC T-403 5 GHz Low Power Data
    Communication System, 5570 MHz

T405_5MHz_4_9GHz
    TELEC T-405 5 GHz Wireless Access System 5
    MHz System 4,900 MHz to 4,950 MHz

T405_5MHz_5_0GHz
    TELEC T-405 5 GHz Wireless Access System 5
    MHz System 5,030 MHz to 5,060 MHz

T405_10MHz_4_9GHz
    TELEC T-405 5 GHz Wireless Access System 10
    MHz System 4,900 MHz to 4,950 MHz

T405_10MHz_5_0GHz
    TELEC T-405 5 GHz Wireless Access System 10
    MHz System 5,030 MHz to 5,060 MHz

T405_20MHz_4_9GHz_OFDM
    TELEC T-405 5 GHz Wireless Access System 20
    MHz System Orthogonal Frequency Division
    Multiplexing System 4,900 MHz to 5,000 MHz
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T405_20MHz_4_9GHz_DCCK
TELEC T-405 5 GHz Wireless Access System 20 MHz System Direct Sequence Spread Spectrum System 4,900 MHz to 5,000 MHz

T405_20MHz_5_0GHz_OFDM
TELEC T-405 5 GHz Wireless Access System 20 MHz System Orthogonal Frequency Division Multiplexing System 5,030 MHz to 5,091 MHz

T405_20MHz_5_0GHz_DCCK
TELEC T-405 5 GHz Wireless Access System 20 MHz System Direct Sequence Spread Spectrum System 5,030 MHz to 5,091 MHz

T405_40MHz
TELEC T-405 5 GHz Wireless Access System 40 MHz System

FCC_15_407_5_15GHZ
FCC PART 15.407 5.15-5.25 GHz Band

FCC_15_407_5_25GHZ_TX
FCC PART 15.407 5.25-5.35 GHz Band Transmitters

FCC_15_407_5_25GHZ_DEVICES
FCC PART 15.407 5.25-5.35 GHz Band Devices

FCC_15_407_5_47GHZ
FCC PART 15.407 5.47-5.725 GHz Band

FCC_15_407_5_725GHZ
FCC PART 15.407 5.725-5.825 GHz Band

ETSI_301_893
EN 301 893 4.5.1 Transmitter unwanted emissions outside the 5 GHz RLAN bands

ETSI_300_328
EN 300 328 4.3.6 Transmitter spurious emissions

When omitted  TELEC T-401 2.4GHz Direct Sequence Spread Spectrum System

When Standard is set to LR-WPANs (IEEE802.15.4) (ACP Measurement) Parameter to set

pattern
BPSK_950M  BPSK 950MHz (ARIB STD-T96)
GFSK_950M_50K  GFSK 950MHz 50ksps (ARIB STD-T96)
GFSK_950M_100K  GFSK 950MHz 100ksps (ARIB STD-T96)
GFSK_950M_200K  GFSK 950MHz 200ksps (ARIB STD-T96)
GFSK_920M_50K  GFSK 920MHz 50ksps (ARIB STD-T108)
GFSK_920M_100K  GFSK 920MHz 100ksps (ARIB STD-T108)
## Chapter 4  
### Native Device Message Details

<table>
<thead>
<tr>
<th>Parameter</th>
<th>Description</th>
</tr>
</thead>
<tbody>
<tr>
<td>GFSK_920M_200K</td>
<td>GFSK 920MHz 200ksps (ARIB STD-T108)</td>
</tr>
<tr>
<td>GFSK_50K_G</td>
<td>GFSK 50ksps (IEEE802.15.4g_d7)</td>
</tr>
<tr>
<td>GFSK_100K_G</td>
<td>GFSK 100ksps (IEEE802.15.4g_d7)</td>
</tr>
<tr>
<td>GFSK_200K_G</td>
<td>GFSK 200ksps (IEEE802.15.4g_d7)</td>
</tr>
<tr>
<td>When omitted</td>
<td>BPSK 950MHz (ARIB STD-T96)</td>
</tr>
</tbody>
</table>

When Standard is set to LR-WPANs (IEEE802.15.4)  
(Spectrum Emission Mask Measurement)

<table>
<thead>
<tr>
<th>Pattern</th>
<th>Parameter to set</th>
</tr>
</thead>
<tbody>
<tr>
<td>OQPSK_2450M</td>
<td>O-QPSK 2450MHz (IEEE802.15.4-2011)</td>
</tr>
<tr>
<td>BPSK_950M</td>
<td>BPSK 950MHz (ARIB STD-T96)</td>
</tr>
<tr>
<td>GFSK_950M_50K</td>
<td>GFSK 950MHz 50ksps (ARIB STD-T96)</td>
</tr>
<tr>
<td>GFSK_950M_100K</td>
<td>GFSK 950MHz 100ksps (ARIB STD-T96)</td>
</tr>
<tr>
<td>GFSK_950M_200K</td>
<td>GFSK 950MHz 200ksps (ARIB STD-T96)</td>
</tr>
<tr>
<td>GFSK_920M_50K</td>
<td>GFSK 920MHz 50ksps (ARIB STD-T108)</td>
</tr>
<tr>
<td>GFSK_920M_100K</td>
<td>GFSK 920MHz 100ksps (ARIB STD-T108)</td>
</tr>
<tr>
<td>GFSK_920M_200K</td>
<td>GFSK 920MHz 200ksps (ARIB STD-T108)</td>
</tr>
<tr>
<td>When omitted</td>
<td>O-QPSK 2450MHz (IEEE802.15.4-2011)</td>
</tr>
</tbody>
</table>

When Standard is set to APCO P25  
(ACP Measurement)

<table>
<thead>
<tr>
<th>Pattern</th>
<th>Parameter to set</th>
</tr>
</thead>
<tbody>
<tr>
<td>EXCEPT_700MHZ-BAND</td>
<td>Except 700MHz-band</td>
</tr>
<tr>
<td>700MHZ-BW-6_25KHZ</td>
<td>700MHz-BW-6.25kHz</td>
</tr>
<tr>
<td>700MHZ-BW-25KHZ</td>
<td>700MHz-BW-25kHz</td>
</tr>
<tr>
<td>700MHZ-BW-100KHZ</td>
<td>700MHz-BW-100kHz</td>
</tr>
<tr>
<td>When omitted</td>
<td>Except 700MHz Band</td>
</tr>
</tbody>
</table>

When Standard is set to APCO P25  
(Spectrum Emission Mask Measurement)

<table>
<thead>
<tr>
<th>Pattern</th>
<th>Parameter to set</th>
</tr>
</thead>
<tbody>
<tr>
<td>FCC_12_5KHZ</td>
<td>FCC 12.5kHz</td>
</tr>
<tr>
<td>NTIA_12_5KHZ</td>
<td>NTIA 12.5kHz</td>
</tr>
<tr>
<td>When omitted</td>
<td>FCC 12.5kHz</td>
</tr>
</tbody>
</table>

When Standard is set to Microlink ETSI  
(Spectrum Emission Mask Measurement)

<table>
<thead>
<tr>
<th>Pattern</th>
<th>Parameter to set</th>
</tr>
</thead>
<tbody>
<tr>
<td>7m2</td>
<td>CS:7MHz  Class:2</td>
</tr>
<tr>
<td>7M4L3-17G</td>
<td>CS:7MHz  Class:4L</td>
</tr>
<tr>
<td>7M4L17-30G</td>
<td>CS:7MHz  Class:4L</td>
</tr>
<tr>
<td>7M4LABV30G</td>
<td>CS:7MHz  Class:4L</td>
</tr>
</tbody>
</table>
## Chapter 4  Native Device Message Details

<table>
<thead>
<tr>
<th>Code</th>
<th>Frequency Band</th>
<th>CS</th>
<th>Class</th>
</tr>
</thead>
<tbody>
<tr>
<td>7M5B3-17G</td>
<td>above 30GHz</td>
<td>7MHz</td>
<td>5B</td>
</tr>
<tr>
<td>7M5B17-30G</td>
<td>3G-17GHz</td>
<td>7MHz</td>
<td>5B</td>
</tr>
<tr>
<td>7M5BABV30G</td>
<td>above 30GHz</td>
<td>7MHz</td>
<td>5B</td>
</tr>
<tr>
<td>14M2</td>
<td>14MHz Class: 2</td>
<td></td>
<td></td>
</tr>
<tr>
<td>14M4L3-17G</td>
<td>3G-17GHz</td>
<td>14MHz</td>
<td>4L</td>
</tr>
<tr>
<td>14M4L17-30G</td>
<td>17G-30GHz</td>
<td>14MHz</td>
<td>4L</td>
</tr>
<tr>
<td>14M4LABV30G</td>
<td>above 30GHz</td>
<td>14MHz</td>
<td>5B</td>
</tr>
<tr>
<td>14M5B3-17G</td>
<td>3G-17GHz</td>
<td>14MHz</td>
<td>5B</td>
</tr>
<tr>
<td>14M5B17-30G</td>
<td>17G-30GHz</td>
<td>14MHz</td>
<td>5B</td>
</tr>
<tr>
<td>14M5BABV30G</td>
<td>above 30GHz</td>
<td>14MHz</td>
<td>5B</td>
</tr>
<tr>
<td>28M2</td>
<td>7MHz Class: 2</td>
<td></td>
<td></td>
</tr>
<tr>
<td>28M4L3-17G</td>
<td>3G-17GHz</td>
<td>7MHz</td>
<td>4L</td>
</tr>
<tr>
<td>28M4L17-30G</td>
<td>17G-30GHz</td>
<td>7MHz</td>
<td>4L</td>
</tr>
<tr>
<td>28M4LABV30G</td>
<td>above 30GHz</td>
<td>7MHz</td>
<td>4H</td>
</tr>
<tr>
<td>28M4H3-17G</td>
<td>3G-17GHz</td>
<td>7MHz</td>
<td>4H</td>
</tr>
<tr>
<td>28M4H17-30G</td>
<td>17G-30GHz</td>
<td>7MHz</td>
<td>4H</td>
</tr>
<tr>
<td>28M4HABV30G</td>
<td>above 30GHz</td>
<td>7MHz</td>
<td>5A6A</td>
</tr>
<tr>
<td>28M5A6A3-17G</td>
<td>3G-17GHz</td>
<td>7MHz</td>
<td>5A6A</td>
</tr>
<tr>
<td>28M5A6A17-30G</td>
<td>17G-30GHz</td>
<td>7MHz</td>
<td>5A6A</td>
</tr>
<tr>
<td>28M5A6AABV30G</td>
<td>above 30GHz</td>
<td>7MHz</td>
<td>5B6B</td>
</tr>
<tr>
<td>28M5B6B3-17G</td>
<td>3G-17GHz</td>
<td>7MHz</td>
<td>5B6B</td>
</tr>
<tr>
<td>28M5B6B17-30G</td>
<td>17G-30GHz</td>
<td>7MHz</td>
<td>5B6B</td>
</tr>
<tr>
<td>28M5B6BABV30G</td>
<td>above 30GHz</td>
<td>7MHz</td>
<td>5B6B</td>
</tr>
<tr>
<td>Frequency Band</td>
<td>CS</td>
<td>Class</td>
<td></td>
</tr>
<tr>
<td>-----------------------</td>
<td>----------</td>
<td>---------</td>
<td></td>
</tr>
<tr>
<td>above 30GHz</td>
<td>56MHz</td>
<td>4L</td>
<td></td>
</tr>
<tr>
<td>3G-17GHz</td>
<td>56MHz</td>
<td>4L</td>
<td></td>
</tr>
<tr>
<td>17G-30GHz</td>
<td>56MHz</td>
<td>4L</td>
<td></td>
</tr>
<tr>
<td>above 30GHz</td>
<td>56MHz</td>
<td>5A6A</td>
<td></td>
</tr>
<tr>
<td>3G-17GHz</td>
<td>56MHz</td>
<td>5A6A</td>
<td></td>
</tr>
<tr>
<td>17G-30GHz</td>
<td>56MHz</td>
<td>5A6A</td>
<td></td>
</tr>
<tr>
<td>above 30GHz</td>
<td>56MHz</td>
<td>5B6B</td>
<td></td>
</tr>
<tr>
<td>3G-17GHz</td>
<td>56MHz</td>
<td>5B6B</td>
<td></td>
</tr>
<tr>
<td>17G-30GHz</td>
<td>56MHz</td>
<td>5B6B</td>
<td></td>
</tr>
</tbody>
</table>

When omitted CS:7MHz Class:2

When Standard is set to NXDN (ACP Measurement) pattern Parameter to set
BW-6_25KHZ BW-6.25kHz
BW-12_5KHZ BW-12.5kHz
When omitted BW-12.5kHz

When Standard is set to NXDN (Spectrum Emission Mask Measurement) pattern Parameter to set
47CFR-D_12_5KHZ 47CFR-D_12.5kHz
When omitted 47CFR-D_12.5kHz

Details

This command is not available when Standard is set to Off.

Example of Use

To set the ACP measurement parameter type to 3GPP W-CDMA Uplink.
LOADSTD ADJ,UPLINK
Chapter 4  Native Device Message Details

LOGSCALEDIV/LOGSCALEDIV?
Log Scale Range

Function

This command sets the Y-axis scale magnification for the log scale display.

Command

LOGSCALEDIV scale

Query

LOGSCALEDIV?

Response

scale
No suffix code. Value is returned in dB units.

Parameter

<table>
<thead>
<tr>
<th>scale</th>
<th>Y-axis scale magnification</th>
</tr>
</thead>
<tbody>
<tr>
<td>0.1</td>
<td>0.1 dB/div</td>
</tr>
<tr>
<td>0.2</td>
<td>0.2 dB/div</td>
</tr>
<tr>
<td>0.5</td>
<td>0.5 dB/div</td>
</tr>
<tr>
<td>1</td>
<td>1 dB/div</td>
</tr>
<tr>
<td>2</td>
<td>2 dB/div</td>
</tr>
<tr>
<td>5</td>
<td>5 dB/div</td>
</tr>
<tr>
<td>10</td>
<td>10 dB/div</td>
</tr>
<tr>
<td>20</td>
<td>20 dB/div</td>
</tr>
</tbody>
</table>

Example of Use

To set the scale magnification to 0.5 dB/div.

LOGSCALEDIV 0.5
LOGSCALEDIV?
> 0.5
MADJMOD/MADJMOD?

ACP Reference

Function

This command sets the reference of the relative level display for ACP measurement

Command

MADJMOD method
MADJMOD num

Query

MADJMOD?

Response

method
num

Parameter

method

- MOD
  Uses the integral power on the entire screen as a reference (Span Total method).
- TOTAL
  Same as MOD.
- INBAND
  Uses the total value of all carrier power as a reference (Carrier Total method).
- BOTHSIDE
  The carrier power of the largest carrier number is used as a reference for the upper offset, while the carrier power of the smallest carrier number is used as reference (Both Sides of Carriers method).

num

Carrier number used as a reference when the reference of the relative level display for Adjacent Channel Power measurement is set to Carrier.

Range 1 to Carrier Number (cf. ADJCARRIERNUM)
Resolution 1
Suffix Code None

Example of Use

To set the ACP measurement method to Inband.
MADJMOD INBAND
MADJMOD?
> INBAND
MBIAS/MBIAS?
External Mixer Bias

Function
This command sets the external mixer's bias current.

Command
MBIAS bias

Query
MBIAS?

Response
bias

Parameter

<table>
<thead>
<tr>
<th>Parameter</th>
<th>Description</th>
</tr>
</thead>
<tbody>
<tr>
<td>bias</td>
<td>External mixer's bias current</td>
</tr>
<tr>
<td>Range</td>
<td>0.0 to 20.0 mA</td>
</tr>
<tr>
<td>Resolution</td>
<td>0.1 mA</td>
</tr>
<tr>
<td>Suffix code</td>
<td>None, value is returned in mA units.</td>
</tr>
<tr>
<td>Default</td>
<td>0.0 mA</td>
</tr>
</tbody>
</table>

Details
This function is available when Option 044/045 is installed for MS2830A.
This function is available when Option 044/046 is installed for MS2840A.
This function is readily available for MS2850A.
A value is held per one external mixer's band.

Example of Use
To set the external mixer's bias current to 10.0 mA.
MBIAS 10.0
MBIAS?
> 10.0
MEAS/MEAS?
Measure Function

Function

This command selects and executes the measurement item and method for Measure Function.

Command

MEAS func,method
MEAS func,num
MEAS OFF

Query

MEAS?

Response

func

Parameter

func

Types of Measure functions
ADJ
ACP measurement
BRSTAVGPWR
Burst Average Power measurement
CHPWR
Channel Power measurement
OBW
Occupied Bandwidth measurement
SEM
Spectrum Emission Mask measurement
SPUR
Spurious Emission measurement
OFF
Measure function Off

method

Selects the measurement execution or method.

EXE
Executes the selected measurement function.

MOD
Executes Span Total method (ACP measurement)

TOTAL
Executes Span Total method (ACP measurement)

INBAND
Executes Carrier Total method (ACP measurement)

BOTHSIDEx
Executes Both Side Carrier method (ACP measurement)

The executable measurement functions are in parentheses.

When omitted
Executes the selected measurement function.
num  

Carrier Number used for ACP measurement  

Range  

1 to Carrier Number (cf. ADJCARRIERNUM)  

Resolution  

1  

Suffix Code  

None

Details

When measuring as the SEM function (func), this becomes the overlap command. When querying the measurement result after executing Spectrum Emission Mask measurement using this command, perform synchronous control using the *WAI command.

Example of Use

To perform the ACP measurement using the Inband method.

MEAS  ADJ, INBAND  
MEAS?  
>  ADJ
**MEAS:BATC:ACP?**

Adjacent Channel Power Batch Measure

**Function**

This command executes ACP measurement and outputs the result after the parameters described in the specified parameter list file have been set.

**Query**

```
MEAS:BATC:ACP? n,filename[,device]
```

**Response**

The same response as :MEASure:ACP[n]? returns. Refer to :MEASure:ACP[n]? in “Chapter 2 SCPI Device Message Details”.

**Parameter**

- **n**  
  Measurement Option  
  Refer to :MEASure:ACP[n]? in “Chapter 2 SCPI Device Message Details”.

- **filename**  
  Parameter List File  
  Specify with any character string enclosed by double quotes (" ") or single quotes (’ ’)

- **device**  
  Drive name  
  A,B,D,E,F,...  
  D drive is used when omitted.

**Details**

This command executes ACP measurement and outputs the result after the parameters described in the specified parameter list have been set. The value returned by this command differs depending on Result Mode. (cf. SYST:RES:MODE)

Place parameter list files in a folder on the specified drive.

```
<device>:\Anritsu Corporation\Signal Analyzer\User Data\Batch
```

If the parameter list file has been changed, the changes must be applied with the MMEM:REL:BATC command. (cf. MMEM:REL:BATC)
Example of Use

To option the results of ACP measurement performed using the parameter list file MyParam.xml.

```
> 0.0,-72.130,0.0,-72.130,-1.270,-73.400,-0.570,-72.700,-0.780,-72.910,-1.030,-73.160,-999.0,-999.0,-999.0,-999.0
```

Format of Parameter list file

Refer to :MEASure:ACP[n]? in “Chapter 2 SCPI Device Message Details”.

**MEAS:BATC:IM?**

Transmit Intermodulation Batch Measure

**Function**

This command executes Transmit intermodulation measurement and outputs the result based on the specified parameter list file.

**Query**

```
:MEAS:BATC:IM? filename[,spa_freq[,sg_freq[,device]]]
```

**Response**

Two values of ref_carrier_a are output when ACP Reference is BSIDes.

```
ref_carrier_a[,ref_carrier_a], lower_offset_1_rel,lower_offset_1_abs,
upper_offset_1_rel,upper_offset_1_abs, lower_offset_2_rel,lower_offset_2_abs,
upper_offset_2_rel,upper_offset_2_abs, lower_offset_3_rel,lower_offset_3_abs,
upper_offset_3_rel,upper_offset_3_abs, spa_1_result,spa_2_result
```
### Chapter 4  Native Device Message Details

<table>
<thead>
<tr>
<th>Parameter</th>
<th>Description</th>
</tr>
</thead>
<tbody>
<tr>
<td>filename</td>
<td>Parameter List File</td>
</tr>
<tr>
<td>spa_freq</td>
<td>Center frequency of the Spectrum Analyzer function.</td>
</tr>
<tr>
<td>Range</td>
<td>–100 MHz to 6.05 GHz (MS2690A)</td>
</tr>
<tr>
<td>Resolution</td>
<td>1 Hz</td>
</tr>
<tr>
<td>Suffix code</td>
<td>HZ, KHZ, KZ, MHZ, MZ, GHZ, GZ</td>
</tr>
<tr>
<td>sg_freq</td>
<td>Signal Generator frequency</td>
</tr>
<tr>
<td>Range</td>
<td>125 MHz to 6 GHz</td>
</tr>
<tr>
<td>Resolution</td>
<td>0.01 Hz</td>
</tr>
<tr>
<td>Suffix code</td>
<td>HZ, KHZ, KZ, MHZ, MZ, GHZ, GZ</td>
</tr>
<tr>
<td>device</td>
<td>Drive name</td>
</tr>
<tr>
<td>lower_offset_n_rel</td>
<td>Relative power of lower Offset-n</td>
</tr>
<tr>
<td>upper_offset_n_rel</td>
<td>Relative power of upper Offset-n</td>
</tr>
<tr>
<td>ref_carrier_a</td>
<td>Power of reference carrier</td>
</tr>
<tr>
<td>lower_offset_n_abs</td>
<td>Absolute power of lower Offset-n</td>
</tr>
<tr>
<td>upper_offset_n_abs</td>
<td>Absolute power of upper Offset-n</td>
</tr>
<tr>
<td>spa_n_result</td>
<td>Result of searching for the peak power after measurement using Zero Span with SPA[n] parameters.</td>
</tr>
</tbody>
</table>
This command executes Transmit intermodulation measurement and outputs the result based on the specified parameter list file.

Place parameter list files in a folder on the specified drive.

<device>:\Anritsu Corporation\Signal Analyzer\User Data\Batch

If the parameter list file has been changed, the changes must be applied with the `MMEM:REL:BATC` command.

(cfr. `MMEM:REL:BATC`)

Example of Use

To execute Transmit intermodulation measurement using the MyParam.xls parameter list file.

```
MEAS:BATC:IM? "MyParam.xml",2GHz,2.005GHz
> 0.0,-72.130,0.0,-72.130,-1.270,-73.400,-0.570,-72.700,-0.780,-72.910,-1.030,-73.160,-999.0,-999.0,-999.0,-999.0
```

Format of Parameter list file

Refer to `:MEASure:BATCh:IM?` in “Chapter 2 SCPI Device Message Details”.
MEAS:BATC:OBW?

Occupied Bandwidth Batch Measure

Function

This command executes OBW measurement and outputs the measurement result after the parameters described in the specified parameter list file have been set.

Query

MEAS:BATC:OBW? n, filename[, device]

Response

The same response as :MEASure:OBWidth[n]? returns. Refer to :MEASure:OBWidth[n]? in “Chapter 2 SCPI Device Message Details”.

Parameter

- **n**: Measurement Option
  Refer to :MEASure:OBWidth[n]? in “Chapter 2 SCPI Device Message Details”.
- **filename**: Parameter List File
  Specify with any character string enclosed by double quotes (" ") or single quotes ( ' ').
- **device**: Drive name
  A, B, D, E, F, ...
  Drive is used when omitted.

Details

OBW measurement is executed and the result is output after the parameters described in the specified parameter list have been set. The value returned by this command differs depending on Result Mode. (cf. SYST:RES:MODE)

Place parameter list files in a folder on the specified drive.

<device>\Anritsu Corporation\Signal Analyzer\User Data\Batch

If the parameter list file has been changed, the changes must be applied with the MMEM:REL:BATC command. (cf. MMEM:REL:BATC)
Example of Use

To acquire the measurement result of OBW measurement using the MyParam.xls parameter list file (A mode, n = 1).

READ:BATC:OBW? 1,"MyParam.xml"
> 30000,1000000000,900050000,1000050000

Format of Parameter list file

Refer to :MEASure:BATCh:OBWidth[n]? in “Chapter 2 SCPI Device Message Details”.
MEAS:BATC:SEM?
Spectrum Emission Mask Batch Measure

Function

This command executes Spectrum Emission Mask measurement and outputs the measurement result after the parameters described in the specified parameter list file have been set.

Query

MEAS:BATC:SEM? n,filename[,device]

Response

The same response as :MEASure:SEMask[n]? returns.
Refer to :MEASure:SEMask[n]? in “Chapter 2 SCPI Device Message Details”.

Parameter

n
Measurement Option
Refer to :MEASure:SEMask[n]? in “Chapter 2 SCPI Device Message Details”.

filename
Parameter List File
Specify with any character string enclosed by double quotes (" ") or single quotes ( ’ )

device
Drive name
A,B,D,E,F,...
D drive is used when omitted.

Details

Spectrum Emission Mask measurement is executed and the result is output after the parameters described in the specified parameter list have been set.

The value returned by this command differs depending on Result Mode. (cf. SYST:RES:MODE)

Place parameter list files in a folder on the specified drive.

<device>:\Anritsu Corporation\Signal Analyzer\User Data\Batch

If the parameter list file has been changed, the changes must be applied with the MMEM:REL:BATC command. (cf. MMEM:REL:BATC)
Example of Use

To acquire the peak value of absolute power of SEM measurement using the MyParam.xls parameter list file (n = 10).

```
```

```
> 999.0,-999.0,-100.000,-100.000,-60.000,-60.000,45.000,-45.000,-30.000,-30.000,-10.000,-10.000,0.000,0.000
```

Format of Parameter list file

Refer to :MEASure:BATCh:SEM[n]? in “Chapter 2 SCPI Device Message Details”.

---

Chapter 4  Native Device Message Details
**MEAS:BATC:SPUR?**

Spurious Emission Batch Measure

**Function**

This command executes Spurious Emission measurement and outputs the measurement result after the parameters described in the specified parameter list file have been set.

**Query**

```
MEAS:BATC:SPUR? n, filename[,device]
```

**Response**

The same response as :MEASure:SPURious[n]? returns.
Refer to :MEASure:SPURious[n]? in “Chapter 2 SCPI Device Message Details”.

**Parameter**

- **n**: Measurement Option  
  Refer to :MEASure:SPURious[n]? in “Chapter 2 SCPI Device Message Details”.
- **filename**: Parameter List File  
  Specify with any character string enclosed by 3 sequence (" ") or single quotes ('')
- **device**: Drive name  
  A, B, D, E, F, ...
  D drive is used when omitted.

**Details**

SPURious Emission measurement is executed and the result is output after the parameters described in the specified parameter list have been set.

The value returned by this command differs depending on Result Mode.  
(cf. SYST:RES:MODE)

Place parameter list files in a folder on the specified drive.

<device>:\Anritsu Corporation\Signal Analyzer\User Data\Batch

If the parameter list file has been changed, the changes must be applied with the MMEM:REL:BATC command.  
(cf. MMEM:REL:BATC)
Example of Use

To acquire the measurement result of Spurious Emission measurement (when Result Mode = A, Spurious Emission Result Type = Worst)

FETC:SPUR? 1,"MyParam.xml"

> 0,1,1,135618.00,-64.25,51.25,-13.00,0,2,2,155970.00,-63.91,50.91,-13.00,0•••

Format of Parameter list file

Refer to :MEASure:BATCh:SPURious [n]? in “Chapter 2 SCPI Device Message Details”.
MEAS:POW?

Measure Power Adjust

**Function**

This command executes power adjustment and reads the result. Power adjustment combines the SG option and power measurement functions to set the output level of the DUT, such as an amplifier, to the specified level.

**Query**

```
MEAS:POW?
rbw,length,sg_start_level,sg_max_level,target,range[,frequency[,tracepoint[,count[,adjust_log[,sg_offset_switch]]]]]]
```

**Response**

```
judge,sa_input,sg_output,count_res,time,sa_input_log_n,sg_output_log_n,count_log_n
```

**Parameter**

- **rbw**: Analysis bandwidth
  - **[MS269xA]**
    - Range/Resolution: 30 Hz to 31.25 MHz
    - Either of the values, 30 Hz to 3 MHz (1-3 sequence), 50 kHz, 5 MHz, 10 MHz, 20 MHz, and 31.25 MHz can be used.
    - Set the specified waveform bandwidth or more.
    - Recommended to set at 31.25 MHz
  - **[MS2830A], [MS2840A]**
    - Range/Resolution: 30 Hz to 31.25 MHz
    - Either of the values, 30 Hz to 3 MHz (1-3 sequence), 500 Hz, 50 kHz, 2 MHz, 5 MHz, 10 MHz, 20 MHz, and 31.25 MHz can be used.
    - Set the specified waveform bandwidth or more.
    - Recommended to set at 31.25 MHz
  - **[Common]**
    - Suffix code: HZ, KHZ, MHZ, MZ, GHZ, GZ
      - Hz is used when omitted.

- **length**: Analysis length
  - Range: 1 µs to 1000 s
  - Suffix code: NS, US, MS, S
    - S is used when omitted
    - µs (resolution)

- **sg_start_level**: Set the SG output level set at the start.
  - When inserting a DUT, specify the DUT input level and RF Input so the maximum input level
is not exceeded.

Range  

[**MS269xA**]  
\[-140 \text{ to } -5 \text{ dBm}\]

[**MS2830A**, **MS2840A**]  
\[-40.00 \text{ to } +20.00 \text{ dBm} (>25 \text{ MHz})\]  
\[-40.00 \text{ to } +2.00 \text{ dBm} (\leq 25 \text{ MHz})\]  
\[-136.00 \text{ to } +15.00 \text{ dBm} (>25 \text{ MHz}) \text{ (Option 022/122)}\]  
\[-136.00 \text{ to } -3.00 \text{ dBm} (\leq 25 \text{ MHz}) \text{ (Option 022/122)}\]

Resolution  
0.01 dBm

**sg_max_level**  
Set the SG maximum output level.

When inserting a DUT, specify the DUT input level and RF Input so the maximum input level is not exceeded.

Range  

[**MS269xA**]  
\[-140 \text{ to } -5 \text{ dBm}\]

[**MS2830A**, **MS2840A**]  
\[-40.00 \text{ to } +20.00 \text{ dBm} (>25 \text{ MHz})\]  
\[-40.00 \text{ to } +2.00 \text{ dBm} (\leq 25 \text{ MHz})\]  
\[-136.00 \text{ to } +15.00 \text{ dBm} (>25 \text{ MHz}) \text{ (Option 022/122)}\]  
\[-136.00 \text{ to } -3.00 \text{ dBm} (\leq 25 \text{ MHz}) \text{ (Option 022/122)}\]

Resolution  
0.01 dBm

Suffix code  
**DBM**, **DM**

**target**  
Target level when executing power adjustment.

Range  

\[-150 \text{ to } 30 \text{ dBm} \text{ (Pre-Amp Off)}\]  
\[-150 \text{ to } 10 \text{ dBm} \text{ (Pre-Amp On)}\]

When adding the reference offset, the added value is the setting range.

Resolution  
0.01 dBm

Suffix code  
**DBM**, **DM**

**range**  
Power adjustment range

Power adjusted is evaluated as PASS when adjustment is within the specified range

Range  
0 to 20 dB

Resolution  
0.01 dB

Suffix code  
**DB**

**frequency**  
Power adjustment execution frequency

Range  

[**MS269xA**]  
125 MHz to 6 GHz

[**MS2830A**]  
250 kHz to 3.6 GHz \text{ (Option 020/120)}\]  
250 kHz to 6 GHz \text{ (Option 041/043, and 021/121)}\]
[MS2840A] 250 kHz to 3.6 GHz (Option 020/122)
250 kHz to 6 GHz (Option 041, and 021/121)

Resolution  1 Hz

Suffix code  HZ, KHZ, KZ, MHZ, MZ, GHZ, GZ
Hz is used when omitted.
MAXimum, MINimum, and DEFault cannot be used. The currently set frequency cannot be used when omitted.

tracepoint  trace point
11  11 point
21  21 point
41  41 point
51  51 point
101  101 point
201  201 point
251  251 point
401  401 point
501  501 point
1001  1001 point
2001  2001 point
5001  5001 point
10001  10001 point
30001  30001 point

(MS269xA, MS2830A, MS2840A Only)
Recommended to specify Trace Point to 1001.

count  Power adjustment execution count
Range  1 to 10
Resolution  1
No suffix code
If the value is omitted, power adjustment is executed 5 times.

adjust_log  Specifies whether or not to output Log at each power adjustment.
ON|1  Output log
OFF|0  Do not output log

sg_offset_switch  Specifies whether or not to return level offset setting in SG output level setting range.
ON|1  Return level offset setting
OFF|0  Do not return the level offset setting values

judge  Evaluates power adjustment
0 is returned at PASS and 1 is returned at FAIL.
-999.0 is returned if there is no measurement.

sa_input  DUT output level
Suffix code  None, dBm (unit)
Native Device Message Details

**sg_output**
Output level of SG Output of this equipment
- No suffix code, dBm (unit),
- 0.01 dB (resolution)
- −999.0 is returned if there is no measurement.

**count_res**
Power adjustment execution count

**time**
Power adjustment time
- 1 ms (resolution)
- No suffix code, ms (unit)
- −999.0 is returned if there is no measurement.

**sa_input_log_n**
DUT output level at power adjustment
- Added to response when Log Output on
- No suffix code, dBm (unit),
- 0.01 dB Resolution

**sg_output_log_n**
Output level from SG Output at each power adjustment
- Added to response when Log Output on
- No suffix code, dBm (unit),
- 0.01 dB Resolution

**count_log_n**
Power adjustment count
- Added to response when Log Output on

### Details

This function cannot be performed when the SG option is not installed.

SG setting and measurement are executed repeatedly until the target level specified at target, range is reached within the count specified at count. This is used for various measurements such as a spurious measurement with specified output level.

In this application, the Reference Level and Attenuator settings are calculated as follows from the Adjustment Target Level, Crest Factor, and Correction value and are set automatically at the measurement section. Using this application, the Attenuator is set so that the Mixer Input Level become 0 dBm.

Reference Level setting value

\[
\text{Reference Level} = \langle \text{target} \rangle + \text{Crest Factor - Correction}
\]

* Crest Factor = 12 dB

However, it is rounded to 50 dBm when Reference Level > 50 dBm (30 dBm at Pre-amp On) and to −120 dBm when Reference Level < −120 dBm

Attenuator setting values

\[
\text{Attenuator} = \text{Reference Level} - \text{Mixer Input Level} + \text{Pre - Amp Gain - Offset}
\]

* Mixer Input Level = 0
* Pre-Amp Gain = 20 dB (only at Pre-Amp On)
* Offset: Reference Level Offset value

However, it is rounded to 60 dB when Attenuator > 60 and to 0 dBm when Attenuator < 0. Additionally, when the Attenuator value is an odd number, it is rounded up to the nearest even number (Example: 35 dB → 36 dB).

After executing this command, the function and the following settings specified by an argument are changed.

- Sets Detection to RMS
- Sets Sweep Mode to Single
- Sets Scale Mode to Log
- Sets Log Scale Unit to dBm

When using the SG offset function, switch to the SG application and set the offset level. Set the value with offset to this command arguments, `sg_start_level` and `sg_max_level` and set `sg_offset_switch` to On.

`sg_output` and `sg_output_log_n` returns the output level with offset.

**Example of Use**

To execute power adjustment under the following conditions:
- Frequency: 2 GHz
- Analysis width: 5 MHz
- Trace point: 1001
- Analysis length: 500 µs
- Start SG output level: –30 dBm
- Max. SG output level: –5 dBm
- Adjustment target level: –10 dBm
- Adjustment range: 0.4 dB
- Adjustment count: 6 times
- Log output: On
- SG Offset: On

```
MEAS:POW?
20000000,500US,-30,-5,-10,0.4,2000000000,1001,6,ON,ON
0,-9.6,-12.5,3,156,-28,-30,1,-9.5,-12.0,2,-9.6,-12.5,3
```
Chapter 4  Native Device Message Details

MEAS:SEM?
Spectrum Emission Mask Measure

Function
This command performs the measurement for Spectrum Emission Mask measurement and outputs the measurement result. It works in the same way as the three commands are transmitted in the following order:
CONF:SEM
INIT:SEM
FETC:SEM

Query
MEAS:SEM? N

MEAS:SPUR?
Spurious Emission Measure

Function
This command performs the Spurious Emission measurement and queries the result. It works in the same way as the three commands are transmitted in the following order:
CONF:SPUR
INIT:SPUR
FETC:SPUR? n

Query
MEAS:SPUR? n
MKACT/MKACT?

Active Marker

Function

This command sets the active marker.

Command

MKACT marker

Query

MKACT?

Response

marker

Parameter

<table>
<thead>
<tr>
<th>marker</th>
<th>Active Marker</th>
</tr>
</thead>
<tbody>
<tr>
<td>MKR1</td>
<td>Marker 1</td>
</tr>
<tr>
<td>MKR2</td>
<td>Marker 2</td>
</tr>
<tr>
<td>MKR3</td>
<td>Marker 3</td>
</tr>
<tr>
<td>MKR4</td>
<td>Marker 4</td>
</tr>
<tr>
<td>MKR5</td>
<td>Marker 5</td>
</tr>
<tr>
<td>MKR6</td>
<td>Marker 6</td>
</tr>
<tr>
<td>MKR7</td>
<td>Marker 7</td>
</tr>
<tr>
<td>MKR8</td>
<td>Marker 8</td>
</tr>
<tr>
<td>MKR9</td>
<td>Marker 9</td>
</tr>
<tr>
<td>MKR10</td>
<td>Marker 10</td>
</tr>
</tbody>
</table>

Details

This command is not available during the Spurious Emission measurement and when Displayed Segment Mode is set to Auto. This command is disabled during the Spectrum Emission Mask measurement.

Example of Use

To set Marker1 to be activated.

MKACT MKR1
MKCF
Marker to Center Frequency

Function

This command sets the marker frequency to the center frequency.

Command

MKCF

Details

This command is not available in the following cases:
• When the marker mode is set to Off.
• During the Spurious Emission measurement.
• During the Spectrum Emission Mask measurement.

Example of Use

To set the marker frequency to center frequency.
MKCF
MKF?
Marker Frequency (Time) Query

Function
This command queries the frequency or time at the marker point level. Regarding the delta marker, queries the frequency gap or time gap between the delta marker and the marker set by Relative To.

Query
MKF? marker

Response
freq
Returns a value without a suffix code, in Hz units, and with a resolution of 0.01 Hz.
time
Returns a value without a suffix code, in ns units, and with a resolution of 0.1 ns.

Details
*** is returned when the Marker Mode is set to Off.
This command is not available during the Spurious Emission measurement and when Displayed Segment Mode is set to Auto.

Parameter

<table>
<thead>
<tr>
<th>marker</th>
<th>Marker type</th>
</tr>
</thead>
<tbody>
<tr>
<td>1</td>
<td>Marker1</td>
</tr>
<tr>
<td>2</td>
<td>Marker2</td>
</tr>
<tr>
<td>3</td>
<td>Marker3</td>
</tr>
<tr>
<td>4</td>
<td>Marker4</td>
</tr>
<tr>
<td>5</td>
<td>Marker5</td>
</tr>
<tr>
<td>6</td>
<td>Marker6</td>
</tr>
<tr>
<td>7</td>
<td>Marker7</td>
</tr>
<tr>
<td>8</td>
<td>Marker8</td>
</tr>
<tr>
<td>9</td>
<td>Marker9</td>
</tr>
<tr>
<td>10</td>
<td>Marker10</td>
</tr>
</tbody>
</table>

When omitted: Active marker

Example of Use
To query the marker point time (1 s).
MKF?
> 1000000000.0
**Chapter 4  Native Device Message Details**

**MKL?**
Marker Level Query

**Function**
This command queries the marker point level. In case of delta marker, it queries the level ratio.

**Query**
MKL? marker

**Response**
level  Marker point level  
No suffix code, in dB units, 0.001 dB  
(When marker level display units are dB-system units)  
No suffix code, in µV units, 0.01 pV  
(When marker level display units are V-system units)  
No suffix code, in µW units, 0.01 yW  
(When marker level display units are W-system units)  
No suffix code, in dB units, resolution 0.001 dB  
(When Marker Mode is Delta and Scale Mode is Log)  
No suffix code, No unit, range: 0.0000 to 10000, 0.0001 resolution  
(When Marker Mode is Delta and when Scale Mode is Lin.)

**Parameter**

<table>
<thead>
<tr>
<th>marker</th>
<th>Marker type</th>
</tr>
</thead>
<tbody>
<tr>
<td>1</td>
<td>Marker1</td>
</tr>
<tr>
<td>2</td>
<td>Marker2</td>
</tr>
<tr>
<td>3</td>
<td>Marker3</td>
</tr>
<tr>
<td>4</td>
<td>Marker4</td>
</tr>
<tr>
<td>5</td>
<td>Marker5</td>
</tr>
<tr>
<td>6</td>
<td>Marker6</td>
</tr>
<tr>
<td>7</td>
<td>Marker7</td>
</tr>
<tr>
<td>8</td>
<td>Marker8</td>
</tr>
<tr>
<td>9</td>
<td>Marker9</td>
</tr>
<tr>
<td>10</td>
<td>Marker10</td>
</tr>
</tbody>
</table>

**Details**
*** is returned when Marker Mode is Off.
This command is not available during the Spurious Emission measurement and when Displayed Segment Mode is set to Auto.

**Example of Use**
To query the marker point level (1.234 dBm).
MKL?
> 1.234
MKLTYPE/MKLTYPE?

Marker Result

Function

This command sets the type of the marker value.

Command

MKLTYPE type_com

Query

MKLTYPE?

Response

type_res

Parameter

<table>
<thead>
<tr>
<th>type_com</th>
<th>Type of Marker value</th>
</tr>
</thead>
<tbody>
<tr>
<td>INT</td>
<td>Integral power in the zone</td>
</tr>
<tr>
<td>TOTAL</td>
<td>Same as above</td>
</tr>
<tr>
<td>DENS</td>
<td>Power density in the zone</td>
</tr>
<tr>
<td>AVG</td>
<td>Same as above</td>
</tr>
<tr>
<td>PEAK</td>
<td>Peak level in the zone</td>
</tr>
</tbody>
</table>

<table>
<thead>
<tr>
<th>type_res</th>
<th>Type of Marker value</th>
</tr>
</thead>
<tbody>
<tr>
<td>TOTAL</td>
<td>Integral power in the zone</td>
</tr>
<tr>
<td>AVG</td>
<td>Power density in the zone</td>
</tr>
<tr>
<td>PEAK</td>
<td>Peak level in the zone</td>
</tr>
</tbody>
</table>

Details

When Scale Mode is Lin, Integration and Density cannot be set.
Integration cannot be set in the time domain mode.
This command is not available during Spurious Emission measurement and when Displayed Segment Mode is Auto.
Not available during Spectrum Emission Mask measurement.
When N dB Bandwidth Measurement is On, the Type of Marker display value is set to the peak level in the zone.

Example of Use

To set the marker value to the power density within the zone band.
MKLTYPE AVG
MKLTYPE?
> AVG
Chapter 4  Native Device Message Details

**MKN/MKN?**

Zone Marker Frequency (Time)

**Function**

This command moves the center of the zone marker to the specified frequency (time).

**Command**

MKN freq,marker
MKN time,marker

**Query**

MKN? marker

**Response**

freq
A value without a suffix code that has a resolution of 0.01 Hz is returned.

time
A value without a suffix code that has a resolution of 0.01 \(\mu s\) is returned.

**Parameter**

<table>
<thead>
<tr>
<th>freq</th>
<th>Center frequency of zone maker</th>
</tr>
</thead>
<tbody>
<tr>
<td>Range</td>
<td></td>
</tr>
<tr>
<td><strong>[MS269xA]</strong></td>
<td>–100 MHz to 6.0 GHz (MS2690A)</td>
</tr>
<tr>
<td></td>
<td>–100 MHz to 13.5 GHz (MS2691A)</td>
</tr>
<tr>
<td></td>
<td>–100 MHz to 26.6 GHz (MS2692A)</td>
</tr>
<tr>
<td><strong>[MS2830A]</strong></td>
<td>–100 MHz to 3.7 GHz (Option 040)</td>
</tr>
<tr>
<td></td>
<td>–100 MHz to 6.1 GHz (Option 041)</td>
</tr>
<tr>
<td></td>
<td>–100 MHz to 13.6 GHz (Option 043)</td>
</tr>
<tr>
<td></td>
<td>–100 MHz to 26.6 GHz (Option 044)</td>
</tr>
<tr>
<td></td>
<td>–100 MHz to 43.1 GHz (Option 045)</td>
</tr>
<tr>
<td><strong>[MS2840A]</strong></td>
<td>–100 MHz to 3.7 GHz (Option 040)</td>
</tr>
<tr>
<td></td>
<td>–100 MHz to 6.1 GHz (Option 041)</td>
</tr>
<tr>
<td></td>
<td>–100 MHz to 26.6 GHz (Option 044)</td>
</tr>
<tr>
<td></td>
<td>–100 MHz to 44.6 GHz (Option 046)</td>
</tr>
<tr>
<td><strong>[MS2850A]</strong></td>
<td>–100 MHz to 32.5 GHz (Option 047)</td>
</tr>
<tr>
<td></td>
<td>–100 MHz to 45 GHz (Option 046)</td>
</tr>
<tr>
<td>Resolution</td>
<td>0.01 Hz</td>
</tr>
<tr>
<td>Suffix code</td>
<td>HZ, KHZ, KZ, MHZ, MZ, GHZ, GZ</td>
</tr>
</tbody>
</table>

Hz is used when omitted.
Chapter 4  Native Device Message Details

Range: –1000 to 1000 s
Resolution: 1 ns
Suffix code: NS,US,MS,S
ms is used when omitted.

Marker types
1  Marker 1
2  Marker 2
3  Marker 3
4  Marker 4
5  Marker 5
6  Marker 6
7  Marker 7
8  Marker 8
9  Marker 9
10 Marker 10

When omitted: Active Marker

Details

This command cannot be set during measurement and when the displayed segment mode is set to Auto.
This command is disabled during the Spectrum Emission Mask measurement.

Example of Use

To move the center of the zone marker to 100 MHz.
MKN 100MHZ
MKN?
> 100000000.00
MKPK

Peak Search

Function

This command searches for the peak point of the active trace and moves the marker point to it.

Command

MKPK
MKPK move

Parameter

Parameter move
Peak point type
HI Moves to the highest peak point.
NH Moves to the peak point below the level of the active marker.

When omitted: Moves to the highest level point.

Details

This command is not available during the Spurious Emission measurement and when Displayed Segment Mode is set to Auto. This command is disabled during the Spectrum Emission Mask measurement.

Example of Use

To move the marker to the next peak point.

MKPK
## MKPX/MKPX?

### Peak Search Resolution

This command sets the resolution for detecting the peak point.

### Command

```
MKPX level
```

### Query

```
MKPX?
```

### Response

```
level
```

No suffix code, in dB units, 0.001 dB

### Parameter

<table>
<thead>
<tr>
<th>Parameter</th>
<th>Description</th>
</tr>
</thead>
<tbody>
<tr>
<td>level</td>
<td>Peak point detection resolution</td>
</tr>
<tr>
<td>Range</td>
<td>0.001 to 100.000 dB (Log Scale)</td>
</tr>
<tr>
<td></td>
<td>0.01 to 100.00% (Lin Scale)</td>
</tr>
<tr>
<td>Suffix code</td>
<td>DB</td>
</tr>
<tr>
<td></td>
<td>dB is used even when omitted.</td>
</tr>
</tbody>
</table>

### Details

This command is not available during the Spurious Emission measurement and when Displayed Segment Mode is set to Auto. This command is disabled during the Spectrum Emission Mask measurement.

### Example of Use

To set the peak point detection resolution to 12.345 dB.
```
MKPX 12.345DB
MKPX 12.345
MKPX?
> 12.345
```
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MKR/MKR?
Marker Mode

Function
This command sets the marker mode.

Command
MKR mode_com,marker

Query
MKR? marker

Response
mode_res

Parameter

<table>
<thead>
<tr>
<th>mode_com</th>
<th>Marker mode</th>
</tr>
</thead>
<tbody>
<tr>
<td>0</td>
<td>Normal marker</td>
</tr>
<tr>
<td>1</td>
<td>Delta marker</td>
</tr>
<tr>
<td>2</td>
<td>Off</td>
</tr>
<tr>
<td>3</td>
<td>Fixed</td>
</tr>
</tbody>
</table>

<table>
<thead>
<tr>
<th>marker</th>
<th>Marker type</th>
</tr>
</thead>
<tbody>
<tr>
<td>1</td>
<td>Marker 1</td>
</tr>
<tr>
<td>2</td>
<td>Marker 2</td>
</tr>
<tr>
<td>3</td>
<td>Marker 3</td>
</tr>
<tr>
<td>4</td>
<td>Marker 4</td>
</tr>
<tr>
<td>5</td>
<td>Marker 5</td>
</tr>
<tr>
<td>6</td>
<td>Marker 6</td>
</tr>
<tr>
<td>7</td>
<td>Marker 7</td>
</tr>
<tr>
<td>8</td>
<td>Marker 8</td>
</tr>
<tr>
<td>9</td>
<td>Marker 9</td>
</tr>
<tr>
<td>10</td>
<td>Marker 10</td>
</tr>
</tbody>
</table>

When omitted Active marker

mode_res Marker Mode

<table>
<thead>
<tr>
<th>mode_res</th>
<th>Marker Mode</th>
</tr>
</thead>
<tbody>
<tr>
<td>0</td>
<td>Normal marker</td>
</tr>
<tr>
<td>1</td>
<td>Delta marker</td>
</tr>
<tr>
<td>2</td>
<td>Off</td>
</tr>
<tr>
<td>3</td>
<td>Fixed</td>
</tr>
</tbody>
</table>

Details
This command is not available during the Spurious Emission measurement and when Displayed Segment Mode is set to Auto.
This command is disabled during the Spectrum Emission Mask measurement.
When N dB Bandwidth Measurement is On, the currently active marker is set to normal.
Example of Use

To set the active marker mode to delta.
MKR 1
MKR?
> 1

**MKRL**
Marker to Reference Level

Function

This command sets the marker level to the reference level.

Command

MKRL

Details

This command is not available in the following cases:
- When the marker mode is set to Off.
- During the Spurious Emission measurement and when the Displayed Segment Mode is set to Auto.
- During the Spectrum Emission Mask measurement.

Example of Use

To set the marker level to the reference level.
MKRL
MKTRACE/MKTRACE?
Marker Trace

Function

This command selects the trace (active trace) to operate the marker.

Command

MKTRACE trace,marker

Query

MKTRACE? marker_query

Response

trace

Parameter

<table>
<thead>
<tr>
<th>marker</th>
<th>Marker type</th>
</tr>
</thead>
<tbody>
<tr>
<td>MKR1</td>
<td>Marker 1</td>
</tr>
<tr>
<td>MKR2</td>
<td>Marker 2</td>
</tr>
<tr>
<td>MKR3</td>
<td>Marker 3</td>
</tr>
<tr>
<td>MKR4</td>
<td>Marker 4</td>
</tr>
<tr>
<td>MKR5</td>
<td>Marker 5</td>
</tr>
<tr>
<td>MKR6</td>
<td>Marker 6</td>
</tr>
<tr>
<td>MKR7</td>
<td>Marker 7</td>
</tr>
<tr>
<td>MKR8</td>
<td>Marker 8</td>
</tr>
<tr>
<td>MKR9</td>
<td>Marker 9</td>
</tr>
<tr>
<td>MKR10</td>
<td>Marker 10</td>
</tr>
</tbody>
</table>

When omitted: All markers are moved onto the specified trace.

<table>
<thead>
<tr>
<th>marker_query</th>
<th>Marker type</th>
</tr>
</thead>
<tbody>
<tr>
<td>MKR1</td>
<td>Marker 1</td>
</tr>
<tr>
<td>MKR2</td>
<td>Marker 2</td>
</tr>
<tr>
<td>MKR3</td>
<td>Marker 3</td>
</tr>
<tr>
<td>MKR4</td>
<td>Marker 4</td>
</tr>
<tr>
<td>MKR5</td>
<td>Marker 5</td>
</tr>
<tr>
<td>MKR6</td>
<td>Marker 6</td>
</tr>
<tr>
<td>MKR7</td>
<td>Marker 7</td>
</tr>
<tr>
<td>MKR8</td>
<td>Marker 8</td>
</tr>
<tr>
<td>MKR9</td>
<td>Marker 9</td>
</tr>
<tr>
<td>MKR10</td>
<td>Marker 10</td>
</tr>
</tbody>
</table>

When omitted: Active marker
trace | Trace type
-----|----------
TRA  | Trace A  
TRB  | Trace B  
TRC  | Trace C  
TRD  | Trace D  
TRE  | Trace E  
TRF  | Trace F  

Details

This command is not available during the Spectrum Emission Mask measurement or the Spurious Emission measurement.

Example of Use

To set the trace of Marker 2 to Trace B.
MKTRACE TRB, MKR2
MKTRACE? MKR2
> TRB
MKW/MKW?
Zone Marker Width

Function

This command sets the zone marker width.

Command

MKW width,marker

Query

MKW? marker

Response

width

Returns *** when the zone marker width is not within the parameter range.

Parameter

<table>
<thead>
<tr>
<th>width</th>
<th>Zone marker width</th>
</tr>
</thead>
<tbody>
<tr>
<td>0</td>
<td>0.5 div</td>
</tr>
<tr>
<td>1</td>
<td>Spot</td>
</tr>
<tr>
<td>2</td>
<td>10 div</td>
</tr>
<tr>
<td>5</td>
<td>1 div</td>
</tr>
<tr>
<td>6</td>
<td>2 div</td>
</tr>
<tr>
<td>7</td>
<td>5 div</td>
</tr>
</tbody>
</table>

<table>
<thead>
<tr>
<th>marker</th>
<th>Marker type</th>
</tr>
</thead>
<tbody>
<tr>
<td>1</td>
<td>Marker1</td>
</tr>
<tr>
<td>2</td>
<td>Marker2</td>
</tr>
<tr>
<td>3</td>
<td>Marker3</td>
</tr>
<tr>
<td>4</td>
<td>Marker4</td>
</tr>
<tr>
<td>5</td>
<td>Marker5</td>
</tr>
<tr>
<td>6</td>
<td>Marker6</td>
</tr>
<tr>
<td>7</td>
<td>Marker7</td>
</tr>
<tr>
<td>8</td>
<td>Marker8</td>
</tr>
<tr>
<td>9</td>
<td>Marker9</td>
</tr>
<tr>
<td>10</td>
<td>Marker10</td>
</tr>
</tbody>
</table>

When omitted: Active marker

Details

This command is not available during the Spurious Emission measurement and when the Displayed Segment Mode is set to Auto. This command is disabled during the Spectrum Emission Mask measurement.
Example of Use

To set the zone marker width to Spot.
MKW 1
MKW?
> 1

**MKZ/MKZ?**

Zone Marker Position

Function

This command moves the zone marker center to the specified position.

Command

MKZ point,marker

Query

MKZ? marker

Response

point

Parameter

<table>
<thead>
<tr>
<th>point</th>
<th>Number of displayed points from the screen left edge</th>
</tr>
</thead>
<tbody>
<tr>
<td>Range</td>
<td>0 to 10, 20, 40, 50, 100, 200, 250, 400, 500, 1000, 2000, 5000, 10000, 30000 (MS269xA, MS2830A, MS2840A Only)</td>
</tr>
</tbody>
</table>

<table>
<thead>
<tr>
<th>marker</th>
<th>Marker type</th>
</tr>
</thead>
<tbody>
<tr>
<td>1</td>
<td>Marker1</td>
</tr>
<tr>
<td>2</td>
<td>Marker2</td>
</tr>
<tr>
<td>3</td>
<td>Marker3</td>
</tr>
<tr>
<td>4</td>
<td>Marker4</td>
</tr>
<tr>
<td>5</td>
<td>Marker5</td>
</tr>
<tr>
<td>6</td>
<td>Marker6</td>
</tr>
<tr>
<td>7</td>
<td>Marker7</td>
</tr>
<tr>
<td>8</td>
<td>Marker8</td>
</tr>
<tr>
<td>9</td>
<td>Marker9</td>
</tr>
<tr>
<td>10</td>
<td>Marker10</td>
</tr>
</tbody>
</table>

When omitted Active marker
This command is not available in the following cases:

- During the Spurious Emission measurement and when Displayed Segment Mode is set to Auto.
- During the Spectrum Emission Mask measurement.

**Example of Use**

To move the zone marker center to 500 points from the screen left edge.

```
MKZ 500
MKZ?
> 500
```

**MKZF/MKZF?**

**Zone Marker Frequency (Time)**

**Function**

This command moves the zone marker center to the specified frequency (time).

**Command**

```
MKZF freq,marker
MKZF time,marker
```

**Query**

```
MKZF? marker
```

**Response**

- **freq**
  - Returns a value without a suffix code, in Hz units, and with a resolution of 0.01 Hz.

- **time**
  - Returns a value without a suffix code, in μs units, and with a resolution of 0.01 μs.

**Parameter**

<table>
<thead>
<tr>
<th>freq</th>
<th>Zone marker center frequency</th>
</tr>
</thead>
<tbody>
<tr>
<td><strong>Range</strong></td>
<td></td>
</tr>
<tr>
<td><strong>[MS269xA]</strong></td>
<td>–100 MHz to 6.0 GHz (MS2690A)</td>
</tr>
<tr>
<td></td>
<td>–100 MHz to 13.5 GHz (MS2691A)</td>
</tr>
<tr>
<td></td>
<td>–100 MHz to 26.6 GHz (MS2692A)</td>
</tr>
<tr>
<td><strong>[MS2830A]</strong></td>
<td>–100 MHz to 3.7 GHz (Option 040)</td>
</tr>
<tr>
<td></td>
<td>–100 MHz to 6.1 GHz (Option 041)</td>
</tr>
</tbody>
</table>
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–100 MHz to 13.6 GHz (Option 043)
–100 MHz to 26.6 GHz (Option 044)
–100 MHz to 43.1 GHz (Option 045)

[MS2840A]
–100 MHz to 3.7 GHz (Option 040)
–100 MHz to 6.1 GHz (Option 041)
–100 MHz to 26.6 GHz (Option 044)
–100 MHz to 44.6 GHz (Option 046)

[MS2850A]
–100 MHz to 32.5 GHz (Option 047)
–100 MHz to 45 GHz (Option 046)

Resolution  0.01 Hz
Suffix code  HZ, KHZ, KZ, MHZ, MZ, GHZ, GZ
Hz is used when omitted.

time
Range      –1000 to 1000 s
Resolution 1 ns
Suffix code NS, US, MS, S
MS is used when omitted.

marker

<table>
<thead>
<tr>
<th>Number</th>
<th>Marker</th>
</tr>
</thead>
<tbody>
<tr>
<td>1</td>
<td>Marker 1</td>
</tr>
<tr>
<td>2</td>
<td>Marker 2</td>
</tr>
<tr>
<td>3</td>
<td>Marker 3</td>
</tr>
<tr>
<td>4</td>
<td>Marker 4</td>
</tr>
<tr>
<td>5</td>
<td>Marker 5</td>
</tr>
<tr>
<td>6</td>
<td>Marker 6</td>
</tr>
<tr>
<td>7</td>
<td>Marker 7</td>
</tr>
<tr>
<td>8</td>
<td>Marker 8</td>
</tr>
<tr>
<td>9</td>
<td>Marker 9</td>
</tr>
<tr>
<td>10</td>
<td>Marker 10</td>
</tr>
</tbody>
</table>

When omitted Active marker

Details

This command is not available during the Spurious Emission measurement and when Displayed Segment Mode is set to Auto.

This command is disabled during the Spectrum Emission Mask measurement.

Example of Use

To move the zone marker center to 100 MHz:
MKZF 100MHZ
MKZF?
> 100000000.00
**MMEM:LOAD:SPUR:TABL**

Recall Spurious Emission Parameter

**Function**

This command queries the saved parameter for the Spurious Emission measurement.

**Command**

```
MMEM:LOAD:SPUR:TABL integer
```

**Parameter**

<table>
<thead>
<tr>
<th>integer</th>
<th>Register to read parameter</th>
</tr>
</thead>
<tbody>
<tr>
<td>Range</td>
<td>1 to 8</td>
</tr>
</tbody>
</table>

**Example of Use**

To query the parameter of Register 3.

```
MMEM:LOAD:SPUR:TABL 3
```
**MMEM:REL:BATC**

Reloading Parameter List Files

**Function**

This command applies the changes made to the parameter list files of the specified drive.

**Command**

`MMEM:REL:BATC device`

**Parameter**

`device`  
Drive name  
A, B, D, E, F, ...  
D drive is used when omitted.

**Details**

The parameter list files used for batch measurement are read in batch when the main unit is started up and during application loading. Therefore, even if the files are changed following startup (or following loading), the changes are not applied to the measurement. (Measurement is executed with the parameters before changes were made.)

This command has the effect of applying the changes made to the parameter list files. The parameter list files as they exist at the moment this command is sent are used for subsequent batch measurements. Place the parameter list files in the following folder on the specified drive.

`<device>:\Anritsu Corporation\Signal Analyzer\User Data\Batch`

This command supports updates of the parameter list files used for the following commands. To update the parameter list file of another application, first execute system change to that application, and then send the update command.

- `MEAS:BATC:ACP?`
- `MEAS:BATC:OBW?`
- `MEAS:BATC:SEM?`
- `MEAS:BATC:SPUR?`
- `MEAS:BATC:IM?`
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MMEM:STOR:SPUR:TABL
Save Spurious Emission Parameter

Function
This command saves a parameter for the Spurious Emission measurement.

Command
MMEM:STOR:SPUR:TABL integer

Parameter
integer  Register
        Range  1 to 8

Example of Use
To save a parameter in Register 3.
MMEM:STOR:SPUR:TABL 3

MOBW/MOBW?
OBW Method

Function
This command sets the Occupied Bandwidth measurement method.

Command
MOBW method

Query
MOBW?

Response
method

Parameter
method  Measurement method
        N  N% method
        XDB  X dB method

Example of Use
To set the Occupied Bandwidth measurement method to X dB Down:
MOBW XDB
MOBW?
> XDB
**MSTAT?**
Measurement Status Query

**Function**

This command queries the measurement status.

**Query**

MSTAT?

**Response**

<table>
<thead>
<tr>
<th>state</th>
<th>Measurement status</th>
</tr>
</thead>
<tbody>
<tr>
<td>0</td>
<td>Normal end</td>
</tr>
<tr>
<td>2</td>
<td>Level over</td>
</tr>
<tr>
<td>9</td>
<td>Not measured</td>
</tr>
</tbody>
</table>

**Example of Use**

To query the measurement status.

MSTAT?

> 0
**MXRMODE/MXRMODE?**

**Mixer Mode**

**Function**

This command switches between Internal and External Mixer.

**Command**

MXRMODE mode

**Query**

MXRMODE?

**Response**

mode

**Parameter**

<table>
<thead>
<tr>
<th>mode</th>
<th>Mixer mode</th>
</tr>
</thead>
<tbody>
<tr>
<td>EXT</td>
<td>Selects External Mixer</td>
</tr>
<tr>
<td>INT</td>
<td>Selects Internal Mixer</td>
</tr>
</tbody>
</table>

**Details**

This function is available when Option 044/045 is installed for MS2830A. This function is available when Option 044/046 is installed for MS2840A. This function is readily available for MS2850A.

**Example of Use**

To use external mixer.

MXRMODE EXT
MXRMODE?
> EXT
**MZW/MZW?**

Zone Marker Width (Specified by Point)

**Function**

This command sets the zone marker width using the displayed points.

**Command**

```plaintext
MZW point,marker
```

**Query**

```plaintext
MZW? marker
```

**Response**

point

**Parameter**

- **point**: Zone marker width
  - Range: 1 to 1001, 2001, 5001, 10001, 30001 (MS269xA, MS2830A, MS2840A Only) points
- **marker**: Marker type
  - 1: Marker 1
  - 2: Marker 2
  - 3: Marker 3
  - 4: Marker 4
  - 5: Marker 5
  - 6: Marker 6
  - 7: Marker 7
  - 8: Marker 8
  - 9: Marker 9
  - 10: Marker 10
  - When omitted: Active marker

**Details**

This command is not available during the Spurious Emission measurement and when Displayed Segment Mode is set to Auto. This command is disabled during the Spectrum Emission Mask measurement.

**Example of Use**

To set the zone marker width to 501 points.

```plaintext
MZW 501
MZW?
> 501
```
**MZWF/MZWF?**

Zone Marker Width (by Frequency)

**Function**

This command sets the zone marker width using frequency.

**Command**

```
MZWF freq,marker
```

**Query**

```
MZWF? marker
```

**Response**

```
freq
```

Returns a value in Hz units, without a suffix code.

**Parameter**

- **freq**  
  Zone marker frequency
  - Range: 0.01 Hz to set span width
  - Resolution: 0.01 Hz
  - Suffix code: HZ, KHZ, KZ, MHZ, MZ, GHZ, GZ
  - Hz is used when omitted.

- **marker**  
  Marker type
  - 1: Marker 1
  - 2: Marker 2
  - 3: Marker 3
  - 4: Marker 4
  - 5: Marker 5
  - 6: Marker 6
  - 7: Marker 7
  - 8: Marker 8
  - 9: Marker 9
  - 10: Marker 10
  - When omitted: Active marker

**Details**

This command is not available in the following cases:
- During the Spurious Emission measurement AND when Displayed Segment Mode is set to Auto.
- During the Spectrum Emission Mask measurement.
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Example of Use

To set the zone marker width to 1 MHz.
MZWF 1MHZ
MZWF?
> 1000000.00

NOISECANCEL/NOISECANCEL?
Noise Cancel

Function

This command sets whether to enable the noise canceling function.

Command

NOISECANCEL on_off

Query

NOISECANCEL?

Response

on_off

Parameter

on_off

Noise canceling function On/Off
ON
Enables the noise canceling function.
OFF
Disables the noise canceling function.

Details

This command is not available in the following cases:
• ACP and Burst Average Power are Off.
• Standard is Off.
• Standard Parameter which can execute the noise canceling function is not set in Load Standard Parameter.
• Any of Span, RBW, Detection, Sweep Time, VBW (when Detection is not set to RMS), and VBW Mode (when VBW is not set to Off and when Detection is not set to RMS) has been changed from Standard Parameter.
• Scale Mode is Linear.

Example of Use

To disable the noise canceling function.
NOISECANCEL OFF
NOISECANCEL?
> OFF
**OBWN/OBWN?**

**OBW N% Ratio**

**Function**

This command sets the Occupied Frequency Bandwidth (N% method) condition.

**Command**

```
OBWN ratio
```

**Query**

```
OBWN?
```

**Response**

```
ratio
```

No suffix code. Value is returned in % units.

**Parameter**

```
Parameter:

<table>
<thead>
<tr>
<th>Parameter</th>
<th>Value</th>
</tr>
</thead>
<tbody>
<tr>
<td>ratio</td>
<td>N%</td>
</tr>
<tr>
<td>Range</td>
<td>0.01 to 99.99%</td>
</tr>
<tr>
<td>Resolution</td>
<td>0.01</td>
</tr>
<tr>
<td>Suffix Code</td>
<td>None</td>
</tr>
</tbody>
</table>
```

**Example of Use**

To set to 12.34%.

```
OBWN 12.34
OBWN?
> 12.34
```
Chapter 4  Native Device Message Details

**OBWXDB/OBWXDB?**

**OBW X dB Value**

**Function**

This command sets the Occupied Frequency Bandwidth (X dB) condition.

**Command**

OBWXDB level

**Query**

OBWXDB?

**Response**

level

No suffix code. Value is returned in dB units.

**Parameter**

<table>
<thead>
<tr>
<th>level</th>
<th>X dB</th>
</tr>
</thead>
<tbody>
<tr>
<td>Range</td>
<td>0.01 to 100.00 dB</td>
</tr>
<tr>
<td>Resolution</td>
<td>0.01 dB</td>
</tr>
<tr>
<td>Suffix Code</td>
<td>DB</td>
</tr>
</tbody>
</table>

db is used when omitted.

**Example of Use**

To set X dB condition to 12.34 dB.

OBWXDB 12.34

OBWXDB?

> 12.34

**PCF**

**Peak to Center Frequency**

**Function**

This command sets the maximum peak point to the center frequency.

**Command**

PCF

**Example of Use**

To set the maximum peak point to the center frequency:

PCF
POWERMARKER/POWERMARKER?

Power Marker

Function

This command changes the display mode of the marker value.

Command

POWERMARKER on_off_com

Query

POWERMARKER?

Response

on_off_res

Parameter

<table>
<thead>
<tr>
<th>on_off_com</th>
<th>Marker Result</th>
</tr>
</thead>
<tbody>
<tr>
<td>ON</td>
<td>Integration</td>
</tr>
<tr>
<td>OFF</td>
<td>Peak</td>
</tr>
</tbody>
</table>

<table>
<thead>
<tr>
<th>on_off_res</th>
<th>Marker Result</th>
</tr>
</thead>
<tbody>
<tr>
<td>ON</td>
<td>Integration or Density</td>
</tr>
<tr>
<td>OFF</td>
<td>Peak</td>
</tr>
</tbody>
</table>

Details

This command is disabled during the Spectrum Emission Mask measurement.

Example of Use

To set the marker result to Integration.

```
POWERMARKER ON
POWERMARKER?
> ON
```
POW:MW:PRES?  
Micro Wave Preselector Bypass

Function
This command sets the micro wave preselector bypass.

Command
POW:MW:PRES switch

Query
POW:MW:PRES?

Response
status

Parameter
switch  Microwave Preselector Bypass
ON|1  Enables bypassing
OFF|0  Disables bypassing
Default OFF
status  Microwave Preselector Bypass
1  Enables bypassing
0  Disables bypassing

Details
This query is available when Option 067/167 is installed for MS269xA. 
This query is available when Option 007/067/167 is installed for MS2830A. 
This query is available when Option 067/167 is installed for MS2840A.

Example of Use
To set micro wave preselector bypass
POW:MW:PRES ON
POW:MW:PRES?
> 1
**PREAMP/PREAMP?**

**Pre Amp**

**Function**

This command sets Pre Amp On/Off.

**Command**

PREAMP on_off

**Query**

PREAMP?

**Response**

on_off

**Parameter**

<table>
<thead>
<tr>
<th>on_off</th>
<th>Pre Amp On/Off</th>
</tr>
</thead>
<tbody>
<tr>
<td>ON</td>
<td>On</td>
</tr>
<tr>
<td>OFF</td>
<td>Off</td>
</tr>
</tbody>
</table>

**Details**

- **[MS269xA]** This command is turned off and thus invalid when Option 008/108 6 GHz Preamplifier is NOT installed.
- **[MS2830A]** This command is turned off and thus invalid when Option 008/108/068/168 Preamplifier is NOT installed.
- **[MS2840A]** This command is turned off and thus invalid when Option 008/108/068/168/069/169 Preamplifier is NOT installed.
- **[MS2850A]** This command is turned off and thus invalid when Option 068/168 Preamplifier is NOT installed.

This command is not available when Spurious Emission is set to On and when Gate View is set to Off.

**Example of Use**

To set Pre Amp to On.

PREAMP ON
PREAMP?
> ON
PRESEL/PRESEL?

Pre-selector Tune

Function

This command sets the pre-selector peaking bias value.

Command

PRESEL action
PRESEL bias

Query

PRESEL?

Response

bias

Parameter

<table>
<thead>
<tr>
<th>Action</th>
<th>Action</th>
</tr>
</thead>
<tbody>
<tr>
<td>AUTO</td>
<td>Sets peaking bias value automatically.</td>
</tr>
<tr>
<td>PRESET</td>
<td>Sets peaking bias value to 0.</td>
</tr>
</tbody>
</table>

<table>
<thead>
<tr>
<th>Parameter</th>
<th>Description</th>
<th>Range</th>
<th>Resolution</th>
</tr>
</thead>
<tbody>
<tr>
<td>bias</td>
<td>Peaking bias value</td>
<td>–128 to 127</td>
<td>1</td>
</tr>
</tbody>
</table>

Details

The automatic setting of the peaking bias value cannot be used under the following conditions.
Also, the peaking bias value setting is available, but the preselector cannot be used:

[Common]
- During Spurious measurement and Displayed Segment Mode is Auto.
- Frequency Span is > 500 MHz.
- Option 007/067/167 is installed and Preselector Bypass is ON.
- Frequency Band Mode is Normal and Center Frequency is ≤ 6.0 GHz.
- Frequency Band Mode is Spurious and Center Frequency is ≤ 4.0 GHz.

This command is not available in the following conditions:

[MS269xA]
- MS2690A is used.

[MS2830A], [MS2840A], [MS2850A]
- MS2830A-040/041/043 is used.
- MS2840A-040/041 is used.
Example of Use

To set the peaking bias value automatically.
PRESEL AUTO
PRESEL?
> 0

PRL
Peak to Reference Level

Function

This command sets the maximum peak point to the reference level.

Command

PRL

Example of Use

To set the maximum peak point to the reference level.
PRL
RB/RB?
Resolution Bandwidth

Function

This command sets the resolution bandwidth (RBW). When Couple Time/Frequency Domain is set to Off, each parameter is specified in accordance with the already-specified frequency axis or time axis measurement.

Command

- RB bandwidth
- RB AUTO

Query

RB?

Response

bandwidth

Parameter

**[MS269xA]**

<table>
<thead>
<tr>
<th>bandwidth</th>
<th>Resolution bandwidth (RBW)</th>
</tr>
</thead>
<tbody>
<tr>
<td>Range/Resolution</td>
<td>30 Hz to 3 MHz (1-3 sequence), 50 kHz, 5 MHz, 10 MHz, 20 MHz, 31.25 MHz</td>
</tr>
<tr>
<td>Suffix code</td>
<td>HZ, KHZ, KZ, MHZ, MZ, GHZ, GZ</td>
</tr>
<tr>
<td>AUTO</td>
<td>Sets the resolution bandwidth automatically, according to the frequency span settings.</td>
</tr>
</tbody>
</table>

**[MS2830A], [MS2840A], [MS2850A]**

RBW Mode Normal

<table>
<thead>
<tr>
<th>bandwidth</th>
<th>Resolution bandwidth (RBW)</th>
</tr>
</thead>
<tbody>
<tr>
<td>Range/Resolution</td>
<td>1 Hz to 3 MHz (1-3 sequence), 500 Hz, 50 kHz, 2 MHz, 5 MHz, 10 MHz, 20 MHz, 31.25 MHz</td>
</tr>
<tr>
<td>Suffix code</td>
<td>HZ, KHZ, KZ, MHZ, MZ, GHZ, GZ</td>
</tr>
<tr>
<td>AUTO</td>
<td>Sets the resolution bandwidth automatically, according to the frequency span settings.</td>
</tr>
</tbody>
</table>

RBW Mode CISPR

<table>
<thead>
<tr>
<th>bandwidth</th>
<th>Resolution bandwidth (RBW)</th>
</tr>
</thead>
<tbody>
<tr>
<td>Range/Resolution</td>
<td>The settable value is 200 Hz, 9 kHz, 120 kHz, or 1 MHz.</td>
</tr>
<tr>
<td>Suffix code</td>
<td>HZ, KHZ, KZ, MHZ, MZ, GHZ, GZ</td>
</tr>
</tbody>
</table>
Chapter 4  Native Device Message Details

Hz is used when omitted.

AUTO  Sets the resolution bandwidth automatically, according to the frequency span settings.

Details

In MS269xA, MS2830A, MS2840A RBW Mode: Normal
For the MS2830A, MS2840A, RBW of 20 MHz and higher can be used only when MS2830A-005/105/007/009/109, MS2840A-005/105/009/109 is installed.
For RBW 31.25 MHz, it is not a Gauss filter but a flat-top characteristic filter. This command can be used only during 0 span.
RBW 1 Hz, 3 Hz, and 10 Hz cannot be set when Auto Sweep Type Rules is Swept Only. This command cannot be used during 0 span because Auto Sweep Type Rules is fixed to Swept Only.
Not available during Spectrum Emission Mask measurement.
This command is not available during the Spurious Emission measurement.

In MS2830A, MS2840A RBW Mode: CISPR
RBW 1 MHz cannot be set when Detector is Quasi-Peak.
Not available when the Measure function is set to On.
Not available when the Gate View function is set to On.

Example of Use

To set the RBW to 3 kHz.

RB  3KHZ
RB?
> 3000

READ:SEM?
Spectrum Emission Mask Read

Function

This command performs the Spectrum Emission Mask measurement and queries the result.
It works in the same way as the two commands are transmitted in the following order:
INIT:SEM
FETC:SEM

Query

READ:SEM? n
READ:SPUR?
Spurious Emission Read

Function
This command performs the Spurious Emission measurement and queries the result.
It works in the same way as the two commands are transmitted in the following order:
INIT:SPUR
FETC:SPUR?

Query
READ:SPUR? n

RES?
Measure Result Query

Function
This command queries the measurement results of the Measure function.

Query
RES?
RES? Mode
(in ACP measurement)

Response and Parameter
Both of them vary according to the measurement item. For details, refer to the following pages.

Details
*** is returned when measurement is not performed normally.

Example of Use
To query ACP measurement results.
RES?
>1.234,1.234,1.234,1.234,1.234,1.234,1.234,1.234,1.234,1.234,1.234,1.234,1.234,1.234,1.234,1.234,1.234,1.234
ACP Measurement Query and Response

<table>
<thead>
<tr>
<th>Query</th>
<th>Response</th>
</tr>
</thead>
<tbody>
<tr>
<td>RES?</td>
<td>lc(,1c),lr1,la1,ur1,ua1,lr2,</td>
</tr>
<tr>
<td>RES? OFFSET</td>
<td>la2,ur2,ua2,lr3,la3,ur3,ua3</td>
</tr>
<tr>
<td><strong>lc</strong></td>
<td>Reference power absolute value for ACP</td>
</tr>
<tr>
<td><strong>lr1</strong></td>
<td>Offset Channel 1 (Bottom side) power relative value</td>
</tr>
<tr>
<td><strong>la1</strong></td>
<td>Offset Channel 1 (Bottom side) power absolute value</td>
</tr>
<tr>
<td><strong>ur1</strong></td>
<td>Offset Channel 1 (Top side) power relative value</td>
</tr>
<tr>
<td><strong>ua1</strong></td>
<td>Offset Channel 1 (Top side) power absolute value</td>
</tr>
<tr>
<td><strong>lr2</strong></td>
<td>Offset Channel 2 (Bottom side) power relative value</td>
</tr>
<tr>
<td><strong>la2</strong></td>
<td>Offset Channel 2 (Bottom side) power absolute value</td>
</tr>
<tr>
<td><strong>ur2</strong></td>
<td>Offset Channel 2 (Top side) power relative value</td>
</tr>
<tr>
<td><strong>ua2</strong></td>
<td>Offset Channel 2 (Top side) power absolute value</td>
</tr>
<tr>
<td><strong>lr3</strong></td>
<td>Offset Channel 3 (Bottom side) power relative value</td>
</tr>
<tr>
<td><strong>la3</strong></td>
<td>Offset Channel 3 (Bottom side) power absolute value</td>
</tr>
<tr>
<td><strong>ur3</strong></td>
<td>Offset Channel 3 (Top side) power relative value</td>
</tr>
<tr>
<td><strong>ua3</strong></td>
<td>Offset Channel 3 (Top side) power absolute value</td>
</tr>
</tbody>
</table>

Two lc values are output when ACP Reference is set to Both Sides of Carriers.

<table>
<thead>
<tr>
<th>Query</th>
<th>Response</th>
</tr>
</thead>
<tbody>
<tr>
<td>RES? CARRIER</td>
<td>ls,lca,lc1,lc2,lc3,lc4,lc5,lc6,</td>
</tr>
<tr>
<td></td>
<td>lc7,lc8,lc9,lc10,lc11,lc12</td>
</tr>
<tr>
<td><strong>ls</strong></td>
<td>Absolute value of the integral powers on the entire screen</td>
</tr>
<tr>
<td><strong>lca</strong></td>
<td>Absolute value of the total of all carrier powers</td>
</tr>
<tr>
<td><strong>lc1</strong></td>
<td>Absolute value of the power of carrier-1</td>
</tr>
<tr>
<td><strong>lc2</strong></td>
<td>Absolute value of the power of carrier-2</td>
</tr>
<tr>
<td><strong>lc3</strong></td>
<td>Absolute value of the power of carrier-3</td>
</tr>
<tr>
<td><strong>lc4</strong></td>
<td>Absolute value of the power of carrier-4</td>
</tr>
<tr>
<td><strong>lc5</strong></td>
<td>Absolute value of the power of carrier-5</td>
</tr>
<tr>
<td><strong>lc6</strong></td>
<td>Absolute value of the power of carrier-6</td>
</tr>
<tr>
<td><strong>lc7</strong></td>
<td>Absolute value of the power of carrier-7</td>
</tr>
<tr>
<td><strong>lc8</strong></td>
<td>Absolute value of the power of carrier-8</td>
</tr>
<tr>
<td><strong>lc9</strong></td>
<td>Absolute value of the power of carrier-9</td>
</tr>
<tr>
<td><strong>lc10</strong></td>
<td>Absolute value of the power of carrier-10</td>
</tr>
<tr>
<td><strong>lc11</strong></td>
<td>Absolute value of the power of carrier-11</td>
</tr>
</tbody>
</table>
### Chapter 4  Native Device Message Details

**Burst Average Power Measurement Query and Response**

<table>
<thead>
<tr>
<th>Query</th>
<th>Response</th>
<th>Description</th>
</tr>
</thead>
<tbody>
<tr>
<td>RES?</td>
<td>level</td>
<td>Average power in burst (absolute value)</td>
</tr>
</tbody>
</table>

**Channel Power Measurement Query and Response**

<table>
<thead>
<tr>
<th>Query</th>
<th>Response</th>
<th>Description</th>
</tr>
</thead>
<tbody>
<tr>
<td>RES?</td>
<td>power,density</td>
<td>Total power of the band specified using Channel bandwidth (absolute value)</td>
</tr>
<tr>
<td></td>
<td>power</td>
<td>Power density of the band specified using Channel bandwidth (absolute value)</td>
</tr>
</tbody>
</table>

**Occupied Bandwidth Measurement Query and Response**

<table>
<thead>
<tr>
<th>Query</th>
<th>Response</th>
<th>Description</th>
</tr>
</thead>
<tbody>
<tr>
<td>RES?</td>
<td>obw,center,start,stop</td>
<td>Occupied bandwidth (in Hz units)</td>
</tr>
<tr>
<td></td>
<td>obw</td>
<td>Center Frequency of the occupied bandwidth (in Hz units)</td>
</tr>
<tr>
<td></td>
<td>center</td>
<td>Frequency on the bottom side of the occupied bandwidth (in Hz units)</td>
</tr>
<tr>
<td></td>
<td>start</td>
<td>Frequency on the top side of the occupied bandwidth (in Hz units)</td>
</tr>
</tbody>
</table>

**Spectrum Emission Mask Measurement Query and Response**

<table>
<thead>
<tr>
<th>Query</th>
<th>Response</th>
</tr>
</thead>
<tbody>
<tr>
<td>RES?</td>
<td>total_judge,ref_power,abs_lower_offset_1,margin_lower_offset_1,freq_lower_offset_1,lower_offset_1,abs_upper_offset_1,margin_upper_offset_1,freq_upper_offset_1,upper_offset_1,abs_lower_offset_2,margin_lower_offset_2,freq_lower_offset_2,lower_offset_2,abs_upper_offset_2,margin_upper_offset_2,freq_upper_offset_2,upper_offset_2,abs_lower_offset_3,margin_lower_offset_3,freq_lower_offset_3,lower_offset_3,abs_upper_offset_3,margin_upper_offset_3,freq_upper_offset_3,upper_offset_3,abs_lower_offset_4,upper_offset_4,abs_upper_offset_4</td>
</tr>
</tbody>
</table>
Chapter 4  Native Device Message Details

\[
\begin{align*}
&\text{margin_lower_offset}_4, \text{freq_lower_offset}_4, \\
&\text{lower_offset}_4, \text{abs_upper_offset}_4, \\
&\text{margin_upper_offset}_4, \text{freq_upper_offset}_4, \\
&\text{upper_offset}_4, \text{abs_lower_offset}_5, \\
&\text{margin_lower_offset}_5, \text{freq_lower_offset}_5, \\
&\text{lower_offset}_5, \text{abs_upper_offset}_5, \\
&\text{margin_upper_offset}_5, \text{freq_upper_offset}_5, \\
&\text{upper_offset}_5, \text{abs_lower_offset}_6, \\
&\text{margin_lower_offset}_6, \text{freq_lower_offset}_6, \\
&\text{lower_offset}_6, \text{abs_upper_offset}_6, \\
&\text{margin_upper_offset}_6, \text{freq_upper_offset}_6, \\
&\text{upper_offset}_6
\end{align*}
\]

Parameter

- **ref_power**: Reference absolute power
  - **Suffix code**: None, dBm unit, 0.001 dB resolution
  - **Returns**: *** when no measurement is performed.

- **abs_lower_offset_n**: Peak value of absolute power of lower Offset-n
  - **Suffix code**: None, dB unit, 0.001 dB resolution
  - **Returns**: *** when no measurement is performed.

- **abs_upper_offset_n**: Peak value of absolute power of upper Offset-n
  - **Suffix code**: None, dB unit, 0.001 dB resolution
  - **Returns**: *** when no measurement is performed.

- **margin_lower_offset_n**: Minimum value of margin of lower Offset-n
  - **Suffix code**: None, dB unit, 0.001 dB resolution
  - **Returns**: *** when no measurement is performed.

- **margin_upper_offset_n**: Minimum value of margin of upper Offset-n
  - **Suffix code**: None, dB unit, 0.001 dB resolution
  - **Returns**: *** when no measurement is performed.

- **freq_lower_offset_n**: Frequency of peak level of lower Offset-n
  - **Suffix code**: None, Hz unit, 1 Hz resolution
  - **Returns**: *** when no measurement is performed.

- **freq_upper_offset_n**: Frequency of peak level of upper Offset-n
  - **Suffix code**: None, Hz unit, 1 Hz resolution
  - **Returns**: *** when no measurement is performed.

- **total_judge**: Total judgment result
  - **lower_offset_n**: Judgment result of lower Offset-n
  - **upper_offset_n**: Judgment result of upper Offset-n
  - **Returns**: 0 when it is PASS, and returns 1 when it is FAIL.
  - **Returns**: *** when no measurement is performed.
Spurious Emission measurement Query and Response

Query
RES?

Response
(When Spurious Emission Result Type is Worst)
judge, spur_1, range_1, freq_1, peak_1, margin_1, limit_1, judge_1, spur_2, range, freq_2, peak_2, margin_2, limit_2, judge_2
•••
spur_20, range_20, freq_20, peak_20, margin_20, limit_20, judge_20

(When Spurious Emission Result Type is Peaks)
judge, spur_1, range_1, freq_1, peak_1, margin_1, limit_1, judge_1, spur_2, range_2, freq_2, peak_2, margin_2, limit_2, judge_2
•••
spur_n, freq_n, peak_n, margin_n, limit_n, judge_n

Parameter

<table>
<thead>
<tr>
<th>Parameter</th>
<th>Description</th>
</tr>
</thead>
<tbody>
<tr>
<td>spur_n</td>
<td>Spurious number</td>
</tr>
<tr>
<td>range_n</td>
<td>Segment number of the detected spurious</td>
</tr>
<tr>
<td>freq_n</td>
<td>Frequency of Spurious</td>
</tr>
<tr>
<td></td>
<td>Only one value is returned when Marker Result Type is Worst.</td>
</tr>
<tr>
<td></td>
<td>Values have no suffix code, are in Hz units, and have 0.01 Hz Resolution.</td>
</tr>
<tr>
<td></td>
<td>*** is returned when an error occurs/no measurement is performed.</td>
</tr>
<tr>
<td>peak_n</td>
<td>Absolute power of Spurious</td>
</tr>
<tr>
<td></td>
<td>Only one value is returned when Marker Result Type is Worst.</td>
</tr>
<tr>
<td></td>
<td>Values have no suffix code, are in dBm units, and have 0.01 dB Resolution.</td>
</tr>
<tr>
<td></td>
<td>*** is returned when an error occurs/no measurement is performed.</td>
</tr>
<tr>
<td>margin_n</td>
<td>Relative power from the limit line of Spurious</td>
</tr>
<tr>
<td></td>
<td>Only one value is returned when Marker Result Type is Worst.</td>
</tr>
<tr>
<td></td>
<td>Values have no suffix code, are in dB units, and have 0.01 dB Resolution.</td>
</tr>
<tr>
<td></td>
<td>*** is returned when an error occurs/no measurement is performed.</td>
</tr>
</tbody>
</table>
**Chapter 4  Native Device Message Details**

- **limit_n**: Power value of the limit line of Spurious
  Only one value is returned when Marker Result Type is Worst.
  Values have no suffix code, are in dBm units, and have 0.01 dB Resolution.
  *** is returned when an error occurs/no measurement is performed.

- **judge_n**: Limit line judges the detected spurious as Pass or Fail.
  0 is returned when judged as Pass, and 1 is returned when judged as Fail.

- **judge**: Pass/Fail judgment to the whole segment
  0 is returned when judged as Pass, and 1 is returned when Fail.
  *** is returned when no measurement is performed.
RESPOWER?
Power Marker Result Query

Function

This command queries the measurement results of the power marker function.

Query

RESPOWER? type

Response

pow1, den1

pow1

Total power (/Zone) in zone marker range
Returns *** when Marker Mode is set to Fixed or Off. Returns *** when Zone Width Type is Spot.

den1

Power density (/Hz) in zone marker range
Returns *** when Marker Mode is set to Fixed or Off.
Returns *** when Zone Width Type is Spot.

pow2, den2

pow2

Total power(/Zone) in the range of the zone marker of the marker set by Relative To.
Returns *** when the marker set by Relative To is set to Fixed or Off.
Returns *** when Zone Width Type of the marker set by Relative To.
Returns *** when Marker Mode is set to other than Delta.
Returns *** when Zone Width Type is set to Spot.

den2

Power density(/Hz) in the range of the zone marker of the marker set by Relative To.
Returns *** when Marker Mode of the marker set by Relative To is set to Fixed or Off.
Returns *** when Zone Width Type of the marker set by Relative To is set to Spot.
Returns *** when Marker Mode is set to other than Delta.
Returns *** when Zone Width Type is set to Spot.
Chapter 4 Native Device Message Details

pow_rel, den_rel

When type is DELTA
Pow

Ratio of the total power of Delta Marker (/Zone)
Returns *** when Marker Mode of the marker set by Relative To is set to Fixed or Off.
Returns *** when Zone Width Type of the marker set by Relative To is set to Spot.
Returns *** when Marker Mode is set to other than Delta
Returns *** when Zone Width Type is set to Spot.

den_rel

Ratio of the power density of Delta Marker (/Hz)
Returns *** when Marker Mode of the marker set by Relative To is set to Fixed or Off.
Returns *** when Zone Width Type of the marker set by Relative To is set to Spot.
Returns *** when Marker Mode is set to other than Delta
Returns *** when Zone Width Type is set to Spot.

pow1, den1, pow2, den2, pow_rel, den_rel

When type is ALL

Parameter

type

Measurement result type
MKR
Power value of marker (absolute value)
REFMKR
Power value of the marker set by Relative To (absolute value)
DELTA
Power value of Delta Marker (relative value)
ALL
Queries all measurement results.

Example of Use

To query all power marker measurement values.
RESPower? ALL
> 1.234,1.234,2.234,2.234,1.000,1.000
**RFAT/RFAT?**

Set RF Attenuator steps

**Function**

This command sets the Attenuator steps to 2 dB or 10 dB.

**Remarks**

This command is provided for backward compatibility. Setting will be ignored.

**Command**

`RFAT att`

**Query**

`RFAT?`

**Response**

`att`

**Parameter**

<table>
<thead>
<tr>
<th>att</th>
<th>Attenuator step value</th>
</tr>
</thead>
<tbody>
<tr>
<td>0</td>
<td>10 dB step</td>
</tr>
<tr>
<td>1</td>
<td>2 dB Step (Default)</td>
</tr>
</tbody>
</table>

**Details**

This command is provided for backward compatibility. A specified value is used for query response. The actual attenuator step is determined by the main frame’s step value and is not variable.

**Example of Use**

To set the Attenuator step to 2 dB.

```
RFAT 1
RFAT?
> 1
```
Chapter 4  Native Device Message Details

RL/RL?
Reference Level

Function
This command sets the reference level.

Command
RL level

Query
RL?

Response
level
No suffix code; a value is returned that conforms to Scale Unit setting.
When the unit is V, µV is returned. When the unit is W, µW is returned.

Parameter

<table>
<thead>
<tr>
<th>level</th>
<th>Reference Level</th>
</tr>
</thead>
<tbody>
<tr>
<td>Range</td>
<td>–120 to +50 dBm or equivalent</td>
</tr>
<tr>
<td>Resolution</td>
<td>0.01 dB (When unit system in dB is selected for the Scale Unit)</td>
</tr>
<tr>
<td></td>
<td>0.01 pV (When unit system in V is selected for the Scale Unit)</td>
</tr>
<tr>
<td></td>
<td>0.01 yW (When unit system in W is selected for the Scale Unit)</td>
</tr>
</tbody>
</table>

<table>
<thead>
<tr>
<th>Suffix code</th>
<th>dBm</th>
</tr>
</thead>
<tbody>
<tr>
<td>DB, DBM, DM</td>
<td>dBm</td>
</tr>
<tr>
<td>DBMV</td>
<td>dBmV</td>
</tr>
<tr>
<td>DBUV</td>
<td>dBµV</td>
</tr>
<tr>
<td>DBUVE</td>
<td>dBµV (emf)</td>
</tr>
<tr>
<td>DBUV</td>
<td>dBµV/m</td>
</tr>
<tr>
<td>V</td>
<td>V</td>
</tr>
<tr>
<td>MV</td>
<td>mV</td>
</tr>
<tr>
<td>UV</td>
<td>µV</td>
</tr>
<tr>
<td>W</td>
<td>W</td>
</tr>
<tr>
<td>MW</td>
<td>mW</td>
</tr>
<tr>
<td>UW</td>
<td>µW</td>
</tr>
<tr>
<td>NW</td>
<td>nW</td>
</tr>
<tr>
<td>PW</td>
<td>pW</td>
</tr>
<tr>
<td>FW</td>
<td>fW</td>
</tr>
</tbody>
</table>
Chapter 4  Native Device Message Details

Conforms to Scale Unit setting if omitted. V is used for Linear Scale.

Details

This is not available when Spurious Emission is On, and Gate View is Off.

Example of Use

To set the reference level to 0 dBm

RL 0
RL 0DBM
RL?
> 0.00
Chapter 4  Native Device Message Details

RLV/RLV?
Reference Level

Function

This command sets the reference level.

Command

RLV level

Query

RLV?

Response

level
No suffix code. Value is returned according to the scale unit settings. Units are µV when V, and µW when W.

Parameter

<table>
<thead>
<tr>
<th>level</th>
<th>Reference level</th>
</tr>
</thead>
<tbody>
<tr>
<td>Range</td>
<td>Value equivalent to –120 to +50 dBm</td>
</tr>
<tr>
<td>Resolution</td>
<td>0.01 dB  (When scale unit settings are dB-system units)</td>
</tr>
<tr>
<td></td>
<td>0.01 pV  (When scale unit settings are V-system units)</td>
</tr>
<tr>
<td></td>
<td>0.01 yW  (When scale unit settings are W-system units)</td>
</tr>
<tr>
<td>Suffix code</td>
<td>DBM, DM dBm</td>
</tr>
<tr>
<td></td>
<td>DBMV dBmV</td>
</tr>
<tr>
<td></td>
<td>DBUV dBµV</td>
</tr>
<tr>
<td></td>
<td>DBUVE dBµV (emf)</td>
</tr>
<tr>
<td></td>
<td>DBUVM dBµV/m</td>
</tr>
<tr>
<td></td>
<td>V V</td>
</tr>
<tr>
<td></td>
<td>MV mV</td>
</tr>
<tr>
<td></td>
<td>UV µV</td>
</tr>
<tr>
<td></td>
<td>W W</td>
</tr>
<tr>
<td></td>
<td>MW mW</td>
</tr>
<tr>
<td></td>
<td>UW µW</td>
</tr>
<tr>
<td></td>
<td>NW nW</td>
</tr>
<tr>
<td></td>
<td>PW pW</td>
</tr>
<tr>
<td></td>
<td>FW fW</td>
</tr>
</tbody>
</table>

The scale unit settings apply when omitted. V is used for linear scale.
Details

This command is not available when Spurious Emission is set to On and when Gate View is set to Off.

Example of Use

To set the reference level to 0 dBm.
RLV 0
RLV 0DBM
RLV?
> 0.00

RMK?
Reference Marker Position Query

Function

This command queries the marker position set by Relative To of the active marker using displayed points from the screen left edge.

Query

RMK?

Response

position

Parameter

position

Marker position of the marker set by Relative To (Number of displayed points from the screen left edge)

Range

0 to 10, 20, 40, 50, 100, 200, 250, 400, 500, 1000, 2000, 5000, 10000, 30000 (MS269xA, MS2830A, MS2840A Only)
(The upper limit value varies according to the number of trace display points.)

Resolution

1

Details

Returns *** when Marker Mode is set to other than Delta.
Returns the result in an absolute value even when Marker Mode of the marker set by Relative To is set to Delta.
This command is not available during the Spurious Emission measurement and when Displayed Segment Mode is set to Auto.

Example of Use

To query the marker position set by Relative To of the active marker.
RMK?
> 123
RMKF?
Reference Marker Frequency (Time) Query

Function

This command queries the frequency or time of the marker point set by Relative To of the active marker.

Query

RMKF?

Response

freq
Returns a value without a suffix code in Hz units, and with a resolution of 0.01 Hz.
time
Returns a value without a suffix code in ns units, and with a resolution of 0.1 ns.

Details

Returns *** when Marker Mode is set to other than Delta. This command is not available during the Spurious Emission measurement and when Displayed Segment Mode is set to Auto.

Example of Use

To query the time of the marker point set by Relative To of the active marker (1 s).
RMKF?
> 1000000000.0
RMKL?
Reference Marker Level Query

Function

This command queries the level data of the marker point set by Relative To of the active marker.

Query

RMKL?

Response

level Level of the marker point set by Relative To

- No suffix code, in dB units, resolution: 0.001 dB
  (When marker level display units are dB-system units)
- No suffix code, in µV units, resolution: 0.01 pV
  (When marker level display units are V-system units)
- No suffix code, in µW units, resolution: 0.01 yW
  (When marker level display units are W-system units)

Details

Returns *** when Marker Mode is set to other than Delta.
This command is not available during the Spurious Emission measurement and when Displayed Segment Mode is set to Auto.

Example of Use

To query the level of the marker point set by Relative To of the active marker:(1.234 dBm).

RMKL?
> 1.234
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ROFFSET/ROFFSET?
Ref. Level Offset Value

Function
This command sets the reference level offset function On/Off and sets the offset value.

Command
ROFFSET level
ROFFSET on_off

Query
ROFFSET?

Response
level             When the reference level offset function is ON
OFF              When the reference level offset function is OFF

Parameter
level            Reference level offset value

Range            −100.00 to +100.00 dB
Resolution       0.01 dB
Suffix code      DB

on_off           Reference level offset function ON/OFF

ON               Sets the reference level offset function to ON.
OFF              Sets the reference level offset function to OFF.

Example of Use
To set the reference level offset function to On at +10 dB.
ROFFSET 10
ROFFSET 10DB
ROFFSET ON
ROFFSET?
> 10.00
**ROFFSETMD/ROFFSETMD?**
Reference Level Offset Mode

**Function**
This command sets the reference level offset function On/Off.

**Command**
ROFFSETMD on_off

**Query**
ROFFSETMD?

**Response**
on_off

**Parameter**
on_off  
ON  
OFF  
Reference level offset function On/Off
Sets the reference level offset function to On.
Sets the reference level offset function to Off.

**Example of Use**
To set the reference level offset function to On.
ROFFSETMD ON
ROFFSETMD?
> ON
SCALELINES/SCALELINES?
Log Scale Line

Function

This command sets the number of Y-axis scale segments for log scale.

Command

SCALELINES line

Query

SCALELINES?

Response

line

Parameter

line Number of Y-axis scale segments
10 10 segments
12 12 segments

Details

This command is available only in log scale mode.

Example of Use

To set the number of Y-axis scale segments at log scale to 12.
SCALELINES 12
SCALELINES?
> 12
SCALEMODE/SCALEMODE?

Scale Mode

Function

This command switches the scale mode.

Command

SCALEMODE mode

Query

SCALEMODE?

Response

scale

Parameter

scale Scale mode
    LOG Log scale
    LIN Linear scale

Details

When the scale mode is set to Linear, the Measure function is Off.

Example of Use

To set the scale mode to linear scale.

SCALEMODE LIN
SCALEMODE?
> LIN
SELECTSTD?/SELECTSTD?
Select Standard

Function

This command selects parameter setting type for the Measure function, using a communication standard.

Command

SELECTSTD standard

Query

SELECTSTD?

Response

standard

Parameter

standard Communication standard
OFF Off
WCDMADN 3GPP W-CDMA Downlink
WCDMAUP 3GPP W-CDMA Uplink
MWIMAXDL Mobile WiMAX (IEEE802.16e) Downlink
MWIMAXUL Mobile WiMAX (IEEE802.16e) Uplink
3GLTE_DL 3GPP LTE Downlink
3GLTE_UL 3GPP LTE Uplink
ETC_DSRC ARIB STD-T75
TDSCDMA 3GPP TDD 1.28Mcps Option
XGPHS XG-PHS
CDMA2KFWD 3GPP2 CDMA2000 Forward Link
EVDOFWD 3GPP2 EV-DO Forward Link
3GLTE_TDD_DL 3GPP LTE TDD Downlink
3GLTE_TDD_UL 3GPP LTE TDD Uplink
ISDBTMM ISDB-Tmm
WLAN WLAN (IEEE802.11)
ISDBT ISDB-T
LRWPANS LR-WPANs (IEEE802.15.4)
APCO_P25 APCO P25
MICROLINKETSI Microlink ETSI
NXDN NXDN
ISDBTSB ISDB-Tsb

Example of Use

To select parameters conforming to the 3GPP W-CDMA Uplink.
SELECTSTD WCDMAUP
SELECTSTD?
> WCDMAUP
SEM/SEM?
Measure Spectrum Emission Mask

Function
This command executes Spectrum Emission Mask measurement.

Command
SEM switch_com

Query
SEM?

Response
switch_res

Parameter
switch_com
ON|1 Sets SEM measurement to On.
OFF|0 Sets SEM measurement to Off.
switch_res
1 SEM measurement is On.
0 SEM measurement is Off.

Example of Use
To set SEM measurement to On.
SEM ON
SEM?
> 1
**SEM:ATT/SEM:ATT?**

Spectrum Emission Mask Attenuator

**Function**

This command sets Attenuator in measuring the reference power for Spectrum Emission Mask measurement.

**Command**

SEM:ATT rel_ampl  
SEM:ATT AUTO

**Query**

SEM:ATT?

**Response**

rel_ampl

No suffix code. Value is returned in dB units.

**Parameter**

rel_ampl  
Attenuator value in measuring the reference power

Range  
0 to 60 dB

Resolution

[MS269xA]  
2 dB

[MS2830A], [MS2840A], [MS2850A]  
2 dB or 10 dB

Refer to “Table 2.4.2-3 Resolution of Input Attenuator” in the MS2830A/MS2840A/MS2850A Signal Analyzer Operation Manual (Spectrum Analyzer Function Operation).

Suffix code

DB, dB is used when omitted.

AUTO  
Sets attenuator value automatically.

**Details**

The setting range of this function is limited depending on the settings of other parameters. Refer to MS2690A/MS2691A/MS2692A Signal Analyzer Operation Manual (Spectrum Analyzer Function Operation) or MS2830A/MS2840A/MS2850A Signal Analyzer Operation Manual (Spectrum Analyzer Function Operation) for details.

**Example of Use**

To set the attenuator in measuring the reference power to 10 dB.

SEM:ATT 10DB  
SEM:ATT?  
> 10.00
SEM:BAND/SEM:BAND?
Spectrum Emission Mask Resolution Bandwidth

Function
This command sets the resolution bandwidth (RBW) of the reference channel for Spectrum Emission Mask measurement.

Command
SEM:BAND bandwidth

Query
SEM:BAND?

Response
bandwidth
Returns a value of Hz units, without a suffix code.

Parameter
bandwidth
Resolution bandwidth (RBW)

[MS269xA]
Range/Resolution
- 30 Hz to 3 MHz (1-3 sequence),
- 50 kHz, 5 MHz, 10 MHz, 20 MHz

[MS2830A], [MS2840A], [MS2850A]
Range/Resolution
- 30 Hz to 3 MHz (1-3 sequence),
- 500 Hz, 50 kHz, 2 MHz, 5 MHz, 10 MHz, 20 MHz

[Common]
Suffix code
- HZ, KHZ, KZ, MHZ, MZ, GHZ, GZ
Hz is used when omitted.

Details
For the MS2830A, MS2840A, RBW of 20 MHz and higher can be used only when MS2830A-005/105/007/009/109, MS2840A-005/105/009/109 is installed. The setting range of this function is limited depending on the settings of other parameters. Refer to MS2690A/MS2691A/MS2692A Signal Analyzer Operation Manual (Spectrum Analyzer Function Operation) or MS2830A/MS2840A/MS2850A Signal Analyzer Operation Manual (Spectrum Analyzer Function Operation) for details.

Example of Use
To set the resolution bandwidth of the reference channel to 3 kHz.
SEM:BAND 3KHZ
SEM:BAND?
> 3000
**SEM:BAND:AUTO/SEM:BAND:AUTO?**

Spectrum Emission Mask Resolution Bandwidth Auto/Manual

**Function**

This command sets the resolution bandwidth (RBW) of the reference channel for Spectrum Emission Mask measurement.

**Command**

`SEM:BAND:AUTO switch_com`

**Query**

`SEM:BAND:AUTO?`

**Response**

`switch_res`

**Parameter**

<table>
<thead>
<tr>
<th>switch_com</th>
<th>Automatic setting function of resolution bandwidth (RBW)</th>
</tr>
</thead>
<tbody>
<tr>
<td>ON</td>
<td>1</td>
</tr>
<tr>
<td>OFF</td>
<td>0</td>
</tr>
</tbody>
</table>

<table>
<thead>
<tr>
<th>switch_res</th>
<th>Automatic setting function of resolution bandwidth (RBW)</th>
</tr>
</thead>
<tbody>
<tr>
<td>1</td>
<td>Automatic setting function is On.</td>
</tr>
<tr>
<td>0</td>
<td>Automatic setting function is Off.</td>
</tr>
</tbody>
</table>

**Details**

The setting range of this function is limited depending on the settings of other parameters. Refer to *MS2690A/MS2691A/MS2692A Signal Analyzer Operation Manual (Spectrum Analyzer Function Operation)* or *MS2830A/MS2840A/MS2850A Signal Analyzer Operation Manual (Spectrum Analyzer Function Operation)* for details.

**Example of Use**

To set the resolution bandwidth of the reference channel automatically.

```
SEM:BAND:AUTO ON
SEM:BAND:AUTO?
> 1
```
SEM:BAND:CHAN/SEM:BAND:CHAN?
Spectrum Emission Mask Integrate Bandwidth

Function
This command sets the measurement bandwidth of the reference power for Spectrum Emission Mask measurement.

Command
SEM:BAND:CHAN bandwidth

Query
SEM:BAND:CHAN?

Response
bandwidth
No suffix code. Value is returned in Hz units.

Parameter
bandwidth  Measurement bandwidth of reference power
           Range  1000 to 200000000 Hz
           Resolution  1 Hz
           Suffix code  HZ,KHZ,KZ,MHZ,MZ,GHZ,GZ
           Hz is used when omitted.

Example of Use
To set the measurement bandwidth of the reference power to 5 MHz.
SEM:BAND:CHAN 5MHZ
SEM:BAND:CHAN?
> 5000000
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SEM:BAND:VID/SEM:BAND:VID?
Spectrum Emission Mask Video Bandwidth

Function
This command sets the video bandwidth (VBW) in measuring the reference power for Spectrum Emission Mask measurement.

Command
SEM:BAND:VID bandwidth
SEM:BAND:VID OFF

Query
SEM:BAND:VID?

Response
bandwidth
Returns a value of Hz units, without a suffix code.
When set to Off, returns OFF.

Parameter

<table>
<thead>
<tr>
<th>Parameter</th>
<th>Description</th>
</tr>
</thead>
<tbody>
<tr>
<td>bandwidth</td>
<td>Video bandwidth (VBW)</td>
</tr>
<tr>
<td>Range/Resolution</td>
<td>1 Hz to 10 MHz (1-3 sequence), 5 kHz</td>
</tr>
<tr>
<td>Suffix code</td>
<td>HZ,KHZ,KZ,MHZ,MZ,GHZ,GZ</td>
</tr>
<tr>
<td>OFF</td>
<td>Sets VBW to Off.</td>
</tr>
</tbody>
</table>

Details
This command is fixed to Auto and cannot be set if the detection mode of the measurement target is set to the following.
- RMS
The setting range of this function is limited depending on the settings of other parameters. Refer to MS2690A/MS2691A/MS2692A Signal Analyzer Operation Manual (Spectrum Analyzer Function Operation) or MS2830A/MS2840A/MS2850A Signal Analyzer Operation Manual (Spectrum Analyzer Function Operation) for details.

Example of Use
To set the video bandwidth of the reference power to 3 kHz.
SEM:BAND:VID 3KHZ
SEM:BAND:VID?
> 3000

Spectrum Emission Mask Video Bandwidth Auto/Manual

**Function**

This command sets the video bandwidth (VBW) in measuring the reference power for Spectrum Emission Mask measurement.

**Command**

SEM:BAND:VID:AUTO switch_com

**Query**

SEM:BAND:VID:AUTO?

**Response**

switch_res

**Parameter**

- **switch_com**
  - **ON|1**
    - Automatic setting
    - Enables the automatic setting function.
    - Disables the automatic setting function.
  - **OFF|0**
    - Automatic
    - Enables the automatic setting function.
    - Disables the automatic setting function.

**Details**

The setting range of this function is limited depending on the settings of other parameters. Refer to MS2690A/MS2691A/MS2692A Signal Analyzer Operation Manual (Spectrum Analyzer Function Operation) or MS2830A/MS2840A/MS2850A Signal Analyzer Operation Manual (Spectrum Analyzer Function Operation) for details.

**Example of Use**

To set the video bandwidth in measuring the reference power automatically.

SEM:BAND:VID:AUTO ON
SEM:BAND:VID:AUTO?
> 1
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SEM:BAND:VID:MODE?/SEM:BAND:VID:MODE?
Spectrum Emission Mask Video Bandwidth Mode

Function

This command sets the processing method for the video bandwidth (VBW) in measuring the reference power for Spectrum Emission Mask measurement.

Command

SEM:BAND:VID:MODE   method

Query

SEM:BAND:VID:MODE?

Response

method

Parameter

method  Processing method for VBW

VIDeo          Normal VBW
POWer          Power VBW

Example of Use

To set the processing method for the video bandwidth in measuring the reference power to Power VBW.
SEM:BAND:VID:MODE  POW
SEM:BAND:VID:MODE?
>  POW
**SEM:CARR/SEM:CARR?**

Spectrum Emission Mask Reference Power

**Function**

This command sets the reference power for Spectrum Emission Mask measurement.

**Command**

SEM:CARR ampl

**Query**

SEM:CARR?

**Response**

ampl

Returns a value of dBm units, without a suffix code.

**Parameter**

ampl

Reference power

Range

–200 to 200 dBm

Resolution

0.01 dB

Suffix code

DBM,DM

dBm is used when omitted.

**Details**

This command is not available when Reference Mode is set to the following:

- Channel
- Peak

**Example of Use**

To set the reference power to –10 dBm.

SEM:CARR -10

SEM:CARR?

> -10.00
SEM:DET/SEM:DET?
Spectrum Emission Mask Detection Mode

Function

This command selects the detection type of the waveform pattern in measuring the reference power for Spectrum Emission Mask measurement.

Command

SEM:DET mode

Query

SEM:DET?

Response

mode

Parameter

mode

Detection type
NORM
Detects positive and negative peaks simultaneously.
POS
Positive peak detection
NEG
Negative peak detection
SAMP
Sampling detection
RMS|AVER
RMS detection

Example of Use

To set the detection type in measuring the reference power to positive peak detection.
SEM:DET POS
SEM:DET?
> POS
SEM:FILT:ALPH/SEM:FILT:ALPH?
Spectrum Emission Mask Reference Roll-off Factor

Function

This command sets the rolloff ratio of the filter in measuring the reference power for Spectrum Emission Mask measurement.

Command

SEM:FILT:ALPH real

Query

SEM:FILT:ALPH?

Response

real

Parameter

real Rolloff ratio of the filter

<table>
<thead>
<tr>
<th>Range</th>
<th>0.01 to 1.00</th>
</tr>
</thead>
<tbody>
<tr>
<td>Resolution</td>
<td>0.01</td>
</tr>
<tr>
<td>Suffix code</td>
<td>None</td>
</tr>
</tbody>
</table>

Details

This command is not available when Reference Mode is set to the following:
- Peak
- Fix

This command is not available when Filter Type is set to the following:
- Rect

Example of Use

To set the rolloff ratio of the filter in measuring the reference power to 0.22.
SEM:FILT:ALPH 0.22
SEM:FILT:ALPH?
> 0.22
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SEM:FILT:TYPE/SEM:FILT:TYPE?
Spectrum Emission Mask Reference Filter Type

Function
This command selects the filter type in measuring the reference power for Spectrum Emission Mask measurement.

Command
SEM:FILT:TYPE type

Query
SEM:FILT:TYPE?

Response
type

Parameter
type  Filter type
  RECT  Rectangle Filter
  NYQ   Nyquist Filter
  RNYQ  Root Nyquist Filter

Details
This command is not available when Reference Mode is set to the following:
- Peak
- Fix

Example of Use
To set the filter type in measuring the reference power to Root Nyquist Filter.
SEM:FILT:TYPE RNYQ
SEM:FILT:TYPE?
> RNYQ
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Spectrum Emission Mask Fail Logic

Function

This command selects the judgment method of the offset for Spectrum Emission Mask measurement.

Command

SEM:LOG:OFFS:LIST:TEST
logic_1[,logic_2[,logic_3[,logic_4[,logic_5[,logic_6[,logic_7[,logic_8[,logic_9[,logic_10[,logic_11[,logic_12]]]]]]]]]]]]]

Query

SEM:LOG:OFFS:LIST:TEST?

Response

logic_1,logic_2,logic_3,logic_4,logic_5,logic_6,logic_7,
logic_8,logic_9,logic_10,logic_11,logic_12

Parameter

<table>
<thead>
<tr>
<th>logic_n</th>
<th>Judgment method for offset n</th>
</tr>
</thead>
<tbody>
<tr>
<td>OFF</td>
<td>Not judge.</td>
</tr>
<tr>
<td>ABS</td>
<td>ABS1</td>
</tr>
<tr>
<td>REL</td>
<td>Judges using the absolute level upper limit 1.</td>
</tr>
<tr>
<td>AND</td>
<td>Judges using the relative level upper limit.</td>
</tr>
<tr>
<td>OR</td>
<td>ABS1 or REL</td>
</tr>
<tr>
<td>AAND</td>
<td>Judges “AND” using the absolute level upper limit 1 and relative level upper limit.</td>
</tr>
<tr>
<td>AOR</td>
<td>(ABS1 or REL) and ABS2</td>
</tr>
<tr>
<td></td>
<td>Judges “OR” using the absolute level upper limit 1 and relative level upper limit. Judges “AND” using the result and the absolute level upper limit 2.</td>
</tr>
</tbody>
</table>


AND2

ABS1 and ABS2
Judges “AND” using the absolute level upper limit 1 and the absolute level upper limit 2.

Example of Use

To judge using the absolute level upper limit 1.

SEM:LOG:OFFS:LIST:TEST
ABS,ABS,ABS,ABS,ABS,ABS,ABS,ABS,ABS,ABS,ABS,ABS
SEM:LOG:OFFS:LIST:TEST?
> ABS,ABS,ABS,ABS,ABS,ABS,ABS,ABS,ABS,ABS,ABS,ABS
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Spectrum Emission Mask Offset Attenuator

Function

This command sets the Attenuator value in measuring the offset for Spectrum Emission Mask measurement.

Command

SEM:OFFS:LIST:ATT
rel_ampl_1[,rel_ampl_2[,rel_ampl_3[,rel_ampl_4[,rel_ampl_5[,rel_ampl_6[,rel_ampl_7[,rel_ampl_8[,rel_ampl_9[,rel_ampl_10[,rel_ampl_11[,rel_ampl_12]]]]]]]]]]

Query

SEM:OFFS:LIST:ATT?

Response

rel_ampl_1,rel_ampl_2,rel_ampl_3,rel_ampl_4,rel_ampl_5,rel_ampl_6,rel_ampl_7,rel_ampl_8,rel_ampl_9,rel_ampl_10,rel_ampl_11,rel_ampl_12

Returns a value of dB units, without a suffix code.

Parameter

rel_ampl_n  Attenuator value in measuring Offset-n measurement
Range  0 to 60 dB
Resolution

[MS269xA], [MS2850A]  2 dB
[MS2830A], [MS2840A]  2 dB or 10 dB

Refer to “Table 2.4.2-3 Resolution of Input Attenuator” in the MS2830A/MS2840A/MS2850A Signal Analyzer Operation Manual (Spectrum Analyzer Function Operation).

Suffix code  DB, dB is used when omitted.
AUTO  Sets the attenuator value automatically.

Details

The setting range of this function is limited depending on the settings of other parameters. Refer to MS2690A/MS2691A/MS2692A Signal Analyzer Operation Manual (Spectrum Analyzer Function Operation) or MS2830A/MS2840A/MS2850A Signal Analyzer Operation Manual (Spectrum Analyzer Function Operation) for details.

Example of Use

To set the attenuator value of the offset.
SEM:OFFS:LIST:ATT
0DB,0DB,0DB,0DB,0DB,0DB,0DB,0DB,0DB,0DB,0DB,0DB
SEM:OFFS:LIST:ATT?
> 0,0,0,0,0,0,0,0,0,0,0,0

Spectrum Emission Mask Offset Resolution Bandwidth

Function

This command sets the resolution bandwidth (RBW) of the offset for Spectrum Emission Mask measurement.

Command

SEM:OFFS:LIST:BAND

\text{bandwidth}_1[,\text{bandwidth}_2[,\text{bandwidth}_3[,\text{bandwidth}_4[,\text{bandwidth}_5[,\text{bandwidth}_6[,\text{bandwidth}_7[,\text{bandwidth}_8[,\text{bandwidth}_9[,\text{bandwidth}_10[,\text{bandwidth}_11[,\text{bandwidth}_12]]]]]]]]]]

Query

SEM:OFFS:LIST:BAND?

Response

\text{bandwidth}_1,\text{bandwidth}_2,\text{bandwidth}_3,\text{bandwidth}_4,\text{bandwidth}_5,\text{bandwidth}_6,\text{bandwidth}_7,\text{bandwidth}_8,\text{bandwidth}_9,\text{bandwidth}_10,\text{bandwidth}_11,\text{bandwidth}_12

Returns a value of Hz units, without a suffix code.

Parameter

\text{bandwidth}_n

Resolution bandwidth (RBW) of Offset-\text{n}

\textbf{[MS269xA]}

Range/Resolution 30 Hz to 3 MHz (1-3 sequence), 50 kHz, 5 MHz, 10 MHz, 20 MHz

\textbf{[MS2830A], [MS2840A], [MS2850A]}

Range/Resolution 30 Hz to 3 MHz (1-3 sequence), 500 Hz, 50 kHz, 2 MHz, 5 MHz, 10 MHz, 20 MHz

\textbf{[Common]}

Suffix code \text{HZ,KHZ,KZ,MHZ,MZ,GHZ,GZ}

Hz is used when omitted.

Details

For the MS2830A, MS2840A, RBW of 20 MHz and higher can be used only when MS2830A-005/105/007/009/109, MS2840A-005/105/009/109 is installed.

The setting range of this function is limited depending on the settings of other parameters. Refer to \textit{MS2690A/MS2691A/MS2692A Signal Analyzer Operation Manual (Spectrum Analyzer Function Operation)} or \textit{MS2830A/MS2840A/MS2850A Signal Analyzer Operation Manual (Spectrum Analyzer Function Operation)} for details.
Example of Use

To set the resolution bandwidth of the offset.

```
SEM:OFFS:LIST:BAND
30KHZ,30KHZ,30KHZ,1MHZ,1MHZ,30KHZ,30KHZ,1MHZ
SEM:OFFS:LIST:BAND?
> 30000,30000,30000,1000000,1000000,30000,30000,30000,1000000,1000000
```
Details

The setting range of this function is limited depending on the settings of other parameters. Refer to MS2690A/MS2691A/MS2692A Signal Analyzer Operation Manual (Spectrum Analyzer Function Operation) or MS2830A/MS2840A/MS2850A Signal Analyzer Operation Manual (Spectrum Analyzer Function Operation) for details.

Example of Use

To set the resolution bandwidth of the offset automatically.

```
SEM:OFFS:LIST:BAND:AUTO
ON, ON, ON, ON, ON, ON, ON, ON, ON
SEM:OFFS:LIST:BAND:AUTO?
> 1, 1, 1, 1, 1, 1, 1, 1, 1, 1
```


Spectrum Emission Mask Offset Integrate Bandwidth

Function

This command sets Integrate BW of the offset for Spectrum Emission Mask measurement.

Command

```
SEM:OFFS:LIST:BAND:INT
bandwidth_1[,bandwidth_2[,bandwidth_3[,bandwidth_4[,bandwidth_5[,bandwidth_6[,bandwidth_7[,bandwidth_8[,bandwidth_9[,bandwidth_10[,bandwidth_11[,bandwidth_12]]]]]]]]]]]"
```

Query

```
SEM:OFFS:LIST:BAND:INT?
```

Response

```
bandwidth_1, bandwidth_2, bandwidth_3, bandwidth_4, bandwidth_5, bandwidth_6, bandwidth_7, bandwidth_8, bandwidth_9, bandwidth_10, bandwidth_11, bandwidth_12
```

Returns a value of Hz units, without a suffix code.
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Parameter

<table>
<thead>
<tr>
<th>Parameter</th>
<th>Description</th>
</tr>
</thead>
<tbody>
<tr>
<td>bandwidth_n</td>
<td>Integrate BW of Offset-n</td>
</tr>
</tbody>
</table>

**Range**
30 Hz to 20 MHz

**Resolution**
Integrate BW is as below.
- 1 Hz (30 Hz to 1 kHz)
- 10 Hz (1 to 10 kHz)
- 100 Hz (10 to 100 kHz)
- 1 kHz (100 kHz to 1 MHz)
- 10 kHz (1 to 20 MHz)

**Suffix code**
HZ,KHZ,KZ,MHZ,MZ,GHZ,GZ
Hz is used when omitted.

Details

The setting range of this function is limited depending on the setting of RBW of the target offset. Refer to MS2690A/MS2691A/MS2692A Signal Analyzer Operation Manual (Spectrum Analyzer Function Operation) or MS2830A/MS2840A/MS2850A Signal Analyzer Operation Manual (Spectrum Analyzer Function Operation) for details.

This command is not available when Detection of the target offset is set to the following:
- Pos&Neg
- Positive
- Negative
- Sample

Example of Use

To set Integrate BW of the offset.

```
SEM:OFFS:LIST:BAND:INT
3KHZ,3KHZ,3KHZ,10KHZ,10KHZ,3KHZ,3KHZ,3KHZ,10KHZ,10KHZ
SEM:OFFS:LIST:BAND:INT?
> 3000,3000,3000,10000,10000,3000,3000,3000,10000,10000,3000,3000,10000,10000
```

**Spectrum Emission Mask Offset Integrate Bandwidth Auto/Manual**

**Function**

This command sets Integrate BW of the offset for Spectrum Emission Mask measurement automatically.

**Command**

```
SEM:OFFS:LIST:BAND:INT:AUTO
switch_1_com[,switch_2_com[,switch_3_com[,switch_4_com[,switch_5_com[,switch_6_com[,switch_7_com[,switch_8_com[,switch_9_com[,switch_10_com[,switch_11_com[,switch_12_com]]]]]]]]]]]]
```

**Query**

```
SEM:OFFS:LIST:BAND:INT:AUTO?
```

**Response**

```
switch_1_res,switch_2_res,switch_3_res,switch_4_res,switch_5_res,switch_6_res,switch_7_res,switch_8_res,switch_9_res,switch_10_res,switch_11_res,switch_12_res
```

**Parameter**

<table>
<thead>
<tr>
<th>Parameter</th>
<th>Description</th>
</tr>
</thead>
<tbody>
<tr>
<td>switch_n_com</td>
<td>Automatic setting of Integrate BW of Offset-n</td>
</tr>
<tr>
<td></td>
<td>ON</td>
</tr>
<tr>
<td></td>
<td>OFF</td>
</tr>
<tr>
<td>switch_n_res</td>
<td>Integrate BW of Offset-n</td>
</tr>
<tr>
<td></td>
<td>1 Enables the automatic setting function</td>
</tr>
<tr>
<td></td>
<td>0 Disables the automatic setting function</td>
</tr>
</tbody>
</table>

**Details**

The setting range of this function is limited depending on the setting of RBW of the target offset. Refer to *MS2690A/MS2691A/MS2692A Signal Analyzer Operation Manual (Spectrum Analyzer Function Operation)* or *MS2830A/MS2840A/MS2850A Signal Analyzer Operation Manual (Spectrum Analyzer Function Operation)* for details.

This command is not available when Detection of the target offset is set to the following:
- Pos&Neg
- Positive
- Negative
- Sample
Example of Use

To set Integrate BW of the offset automatically.

SEM:OFFS:LIST:BAND:INT:AUTO
ON,ON,ON,ON,ON,ON,ON,ON,ON,ON,ON,ON
SEM:OFFS:LIST:BAND:INT:AUTO?
> 1,1,1,1,1,1,1,1,1,1,1,1


Spectrum Emission Mask Offset Video Bandwidth

Function

This command sets the video bandwidth (VBW) of the offset for Spectrum Emission Mask measurement.

Command

SEM:OFFS:LIST:BAND:VID
bandwidth_1[,bandwidth_2[,bandwidth_3[,bandwidth_4[,bandwidth_5[,bandwidth_6[,bandwidth_7[,bandwidth_8[,bandwidth_9[,bandwidth_10[,bandwidth_11[,bandwidth_12]]]]]]]]]]

Query

SEM:OFFS:LIST:BAND:VID?

Response

bandwidth_1,bandwidth_2,bandwidth_3,bandwidth_4,bandwidth_5,bandwidth_6,bandwidth_7,bandwidth_8,bandwidth_9,bandwidth_10,bandwidth_11,bandwidth_12

Returns a value of Hz units, without a suffix code.

Returns OFF when set to Off.

Parameter

<table>
<thead>
<tr>
<th>bandwidth_n</th>
<th>Video bandwidth of Offset-n (VBW)</th>
</tr>
</thead>
<tbody>
<tr>
<td>Range/Resolution</td>
<td></td>
</tr>
<tr>
<td>1 Hz to 10 MHz (1-3 sequence), 5 kHz</td>
<td></td>
</tr>
</tbody>
</table>

Suffix code | Hz,KHZ,KZ,MHZ,MZ,GHZ,GZ |
| Hz is used when omitted. |

OFF | Sets VBW to Off. |

Details

The setting range of this function is limited depending on the settings of other parameters. Refer to MS2690A/MS2691A/MS2692A Signal Analyzer Operation Manual (Spectrum Analyzer Function Operation) or MS2830A/MS2840A/MS2850A Signal Analyzer Operation Manual (Spectrum Analyzer Function Operation) for details.
Example of Use

To set the video bandwidth of the offset.
SEM:OFFS:LIST:BAND:VID
3KHZ,3KHZ,3KHZ,10KHZ,10KHZ,3KHZ,3KHZ,10KHZ,10KHZ
SEM:OFFS:LIST:BAND:VID?
> 3000,3000,3000,10000,10000,10000,3000,3000,3000,10000,10000

Spectrum Emission Mask Offset Video Bandwidth Auto/Manual

Function

This command sets the video bandwidth (VBW) of the offset for Spectrum Emission Mask measurement.

Command

SEM:OFFS:LIST:BAND:VID:AUTO
switch_1_com[,switch_2_com[,switch_3_com[,switch_4_com[,switch_5_com[,switch_6_com[,switch_7_com[,switch_8_com[,switch_9_com[,switch_10_com[,switch_11_com[,switch_12_com]]]]]]]]]]]]]]]]]]]]]]]]]]]]]]]]]]]

Query

SEM:OFFS:LIST:BAND:VID:AUTO?

Response

switch_1_res,switch_2_res,switch_3_res,switch_4_res,switch_5_res,switch_6_res,switch_7_res,switch_8_res,switch_9_res,switch_10_res,switch_11_res,switch_12_res

Parameter

switch_n_com
ON|1
OFF|0

switch_n_res
1
0

Automatic On/Off of Offset-n
Enables the automatic setting function.
Disables the automatic setting function.
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Details

The setting range of this function is limited depending on the settings of other parameters. Refer to MS2690A/MS2691A/MS2692A Signal Analyzer Operation Manual (Spectrum Analyzer Function Operation) or MS2830A/MS2840A/MS2850A Signal Analyzer Operation Manual (Spectrum Analyzer Function Operation) for details.

Example of Use

To set the video bandwidth of the offset automatically.

SEM:OFFS:LIST:BAND:VID:AUTO
ON, ON, ON, ON, ON, ON, ON
SEM:OFFS:LIST:BAND:VID:AUTO?
> 1, 1, 1, 1, 1, 1, 1, 1


Spectrum Emission Mask Offset Video Bandwidth Mode

Function

This command sets the processing method for the video bandwidth (VBW) of the offset for Spectrum Emission Mask measurement.

Command

SEM:OFFS:LIST:BAND:VID:MODE
method_1[, method_2[, method_3[, method_4[, method_5[, method_6[, method_7[, method_8[, method_9[, method_10[, method_11[, method_12]]]]]]]]]]

Query

SEM:OFFS:LIST:BAND:VID:MODE?

Response

method_1, method_2, method_3, method_4, method_5, method_6, method_7, method_8, method_9, method_10, method_11, method_12

Parameter

method_n  Processing method for VBW of Offset-n
VID  Normal VBW
POW  Power VBW

Example of Use

To set the method of processing the video bandwidth of the offset to Normal VBW.

SEM:OFFS:LIST:BAND:VID:MODE
VID, VID, VID, VID, VID, VID, VID, VID, VID
SEM:OFFS:LIST:BAND:VID:MODE?
> VID, VID, VID, VID, VID, VID, VID, VID, VID
Spectrum Emission Mask Offset Detection Mode

Function
This command selects the detection type of the waveform pattern of the offset for Spectrum Emission Mask measurement.

Command
SEM:OFFS:LIST:DET
mode_1[,mode_2[,mode_3[,mode_4[,mode_5[,mode_6[,mode_7[,mode_8[,mode_9[,mode_10[,mode_11[,mode_12]]]]]]]]]]]]]]]]]]]]]]]

Query
SEM:OFFS:LIST:DET?

Response
mode_1,mode_2,mode_3,mode_4,mode_5,mode_6,mode_7,mode_8,mode_9,mode_10,mode_11,mode_12

Parameter
mode_n
NORM
Detects positive and negative peaks simultaneously.
POS
Positive peak detection
NEG
Negative peak detection
SAMP
Sampling detection
RMS|AVER
RMS detection

Example of Use
To set the detection type of the offset to POS (positive peak).
SEM:OFFS:LIST:DET
POS,POS,POS,POS,POS,POS,POS,POS,POS,POS,POS,POS
SEM:OFFS:LIST:DET?
> POS,POS,POS,POS,POS,POS,POS,POS,POS,POS,POS,POS
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Spectrum Emission Mask Offset Start Frequency

Function

This command sets the start frequency of the offset for Spectrum Emission Mask measurement.

Command

SEM:OFFS:LIST:FREQ:STAR
freq_1[,freq_2[,freq_3[,freq_4[,freq_5[,freq_6[,freq_7[,freq_8[,freq_9[,freq_10[,freq_11[,freq_12]]]]]]]]]]]]]

Query

SEM:OFFS:LIST:FREQ:STAR?

Response

freq_1,freq_2,freq_3,freq_4,freq_5,freq_6,freq_7,freq_8,
freq_9,freq_10,freq_11,freq_12

Returns a value of Hz units, without a suffix code.

Parameter

freq_n  Start frequency of Offset-n
Range    0 to 499999700 Hz
Resolution  2 Hz
Suffix code  HZ,KHZ,KZ,MHZ,MZ,GHZ,GZ
Hz is used when omitted.

Example of Use

To set the start frequency of the offset to 4 MHz.
SEM:OFFS:LIST:FREQ:STAR
4MHZ,4MHZ,4MHZ,4MHZ,4MHZ,4MHZ,4MHZ,4MHZ,4MHZ,4MHZ,4MHZ,4MHZ,

SEM:OFFS:LIST:FREQ:STAR?
>
4000000,4000000,4000000,4000000,4000000,4000000,4000000,4000000,4000000,
Spectrum Emission Mask Offset Stop Frequency

Function
This command sets the stop frequency of the offset for Spectrum Emission Mask measurement.

Command
SEM:OFFS:LIST:FREQ:STOP
freq_1[,freq_2[,freq_3[,freq_4[,freq_5[,freq_6[,freq_7[,freq_8[,freq_9[,freq_10[,freq_11[,freq_12]]]]]]]]]]]

Query
SEM:OFFS:LIST:FREQ:STOP?

Response
freq_1,freq_2,freq_3,freq_4,freq_5,freq_6,freq_7,freq_8,freq_9,freq_10,freq_11,freq_12
No suffix code. Value is returned in Hz units.

Parameter
freq_n Stop frequency of Offset-n
Range 300 to 500000000 Hz
Resolution 2 Hz
Suffix code HZ,KHZ,KZ,MHZ,MZ,GHZ,GZ
Hz is used when omitted.

Example of Use
To set the stop frequency of the offset.
SEM:OFFS:LIST:FREQ:STOP
6MHZ,6MHZ,6MHZ,6MHZ,6MHZ,6MHZ,6MHZ,6MHZ,6MHZ,6MHZ
SEM:OFFS:LIST:FREQ:STOP?
>
6000000,6000000,6000000,6000000,6000000,6000000,6000000,6000000,6000000,6000000,6000000,6000000
**Spectrum Emission Mask Offset Reference Level**

**Function**  
This command sets the reference level of the offset for Spectrum Emission Mask measurement.

**Command**  
```plaintext
SEM:OFFS:LIST:RLEV
ampl_1[,ampl_2[,ampl_3[,ampl_4[,ampl_5[,ampl_6[,ampl_7[,ampl_8[,ampl_9[,ampl_10[,ampl_11[,ampl_12]]]]]]]]]]]
```

**Query**  
```plaintext
SEM:OFFS:LIST:RLEV?
```

**Response**  
```plaintext
rel_ampl_1,rel_ampl_2,rel_ampl_3,rel_ampl_4,rel_ampl_5,rel_ampl_6,rel_ampl_7,rel_ampl_8,rel_ampl_9,rel_ampl_10,rel_ampl_11,rel_ampl_12
```

Returns a value of dBm units, without a suffix code.

**Parameter**  
<table>
<thead>
<tr>
<th>Parameter</th>
<th>Description</th>
</tr>
</thead>
<tbody>
<tr>
<td>ampl_n</td>
<td>Reference level of Offset-n</td>
</tr>
<tr>
<td>Range</td>
<td>Value equivalent to –120 to +50 dBm</td>
</tr>
<tr>
<td>Resolution</td>
<td>0.01 dB</td>
</tr>
<tr>
<td>Suffix code</td>
<td>DBM,DM</td>
</tr>
</tbody>
</table>

dBm is used when omitted.

**Example of Use**  
To set the reference level of the offset to 0 dBm.
```
SEM:OFFS:LIST:RLEV 0,0,0,0,0,0,0,0,0,0,0,0
SEM:OFFS:LIST:RLEV?
>`
```
```
0.00,0.00,0.00,0.00,0.00,0.00,0.00,0.00,0.00,0.00,0.00,0.00
```

[4-242]
**SEM:OFFS:LIST:RLEV:AUTO?**

Spectrum Emission Mask Offset Reference Level Auto/Manual

**Function**

This command sets the reference level of the offset for Spectrum Emission Mask measurement automatically.

**Command**

```
SEM:OFFS:LIST:RLEV:AUTO
switch_1_com[,switch_2_com[,switch_3_com[,switch_4_com[,switch_5_com[,switch_6_com[,switch_7_com[,switch_8_com[,switch_9_com[,switch_10_com[,switch_11_com[,switch_12_com]]]]]]]]]]
```

**Query**

```
SEM:OFFS:LIST:RLEV:AUTO?
```

**Response**

```
switch_1_res,switch_2_res,switch_3_res,switch_4_res,switch_5_res,switch_6_res,switch_7_res,switch_8_res,switch_9_res,switch_10_res,switch_11_res,switch_12_res
```

**Parameter**

- `switch_n_com`
  - ON|1: Enables the automatic setting function.
  - OFF|0: Disables the automatic setting function.

- `switch_n_res`
  - 1: Automatic setting function is enabled.
  - 0: Automatic setting function is disabled.

**Details**

The same value as the reference level in measuring the reference power is used in the automatic setting.

**Example of Use**

To set the reference level of the offset automatically.

```
SEM:OFFS:LIST:RLEV:AUTO
ON,ON,OFF,OFF,ON,ON,ON,OFF,OFF,ON,ON
SEM:OFFS:LIST:RLEV:AUTO?
>1,1,0,0,1,1,1,1,0,0,1,1
```
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Spectrum Emission Mask Offset Start Frequency Absolute Limit Level

Function

This command sets the absolute level upper limit of the offset start frequency for Spectrum Emission Mask measurement.

Command

SEM:OFFS:LIST:STAR:ABS
integer,ampl_1[,ampl_2[,ampl_3[,ampl_4[,ampl_5[,ampl_6[,ampl_7[,ampl_8[,ampl_9[,ampl_10[,ampl_11[,ampl_12]]]]]]]]]]

Query


Response

ampl_1,ampl_2,ampl_3,ampl_4,ampl_5,ampl_6,ampl_7,ampl_8,ampl_9,ampl_10,ampl_11,ampl_12
Returns a value of dBm units, without a suffix code.

Parameter

<table>
<thead>
<tr>
<th>Parameter</th>
<th>Description</th>
</tr>
</thead>
<tbody>
<tr>
<td>integer</td>
<td>Absolute level</td>
</tr>
<tr>
<td>1</td>
<td>Absolute level 1</td>
</tr>
<tr>
<td>2</td>
<td>Absolute level 2</td>
</tr>
<tr>
<td>ampl_n</td>
<td>Absolute level upper limit of Offset·n start frequency</td>
</tr>
</tbody>
</table>

Range  –200 to +50 dBm
Resolution  0.01 dB
Suffix code  DBM,DM
dBm is set when omitted.

Details

ABSolute1 sets the absolute level upper limit 1, and ABSolute2 sets the absolute level upper limit 2.

Example of Use

To set the absolute level upper limit 2 of the start frequency of the offset.

SEM:OFFS:LIST:STAR:ABS 2,0,-2,-2,0,0,-10,0,-2,-2,0,0,-10
> 0.00,-2.00,-2.00,0.00,0.00,-10.00,0.00,-2.00,-2.00,0.00,0.00,-10.00
SEM:OFFS:LIST:STAR:RCAR

Spectrum Emission Mask Offset Start Frequency Limit Level

Function

This command sets the relative level limit of the offset start frequency for Spectrum Emission Mask measurement.

Command

SEM:OFFS:LIST:STAR:RCAR
ampl_1[,ampl_2[,ampl_3[,ampl_4[,ampl_5[,ampl_6[,ampl_7[,ampl_8[,ampl_9[,ampl_10[,ampl_11[,ampl_12]]]]]]]]]]]

Query

SEM:OFFS:LIST:STAR:RCAR?

Response

ampl_1,ampl_2,ampl_3,ampl_4,ampl_5,ampl_6,ampl_7,ampl_8,
ampl_9,ampl_10,ampl_11,ampl_12

Returns a value of dBm units, without a suffix code.

Parameter

ampl_n Relative level limit of Offset-n start frequency
Range –200 to +50 dBm
Resolution 0.01 dB
Suffix code DB
   dB is set when omitted.

Example of Use

To set the relative level limit of the start frequency of the offset.
SEM:OFFS:LIST:STAR:RCAR 0,0,0,0,0,0,0,0,0,0,0,0
SEM:OFFS:LIST:STAR:RCAR?
>
0.00,0.00,0.00,0.00,0.00,0.00,0.00,0.00,0.00,0.00,0.00,0.00,0.00,0.00,0.00,0.00,0.00,0.00,0.00,0.00,0.00,0.00,0.00,0.00,0.00,0.00,0.00,0.00
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Spectrum Emission Mask Offset On/Off

**Function**

This command sets the offset for Spectrum Emission Mask measurement On/Off.

**Command**

```
SEM:OFFS:LIST:STAT
switch_1_com[,switch_2_com[,switch_3_com[,switch_4_com[,switch_5_com[,switch_6_com[,switch_7_com[,switch_8_com[,switch_9_com[,switch_10_com[,switch_11_com[,switch_12_com]]]]]]]]]]]
```

**Query**

```
SEM:OFFS:LIST:STAT?
```

**Response**

```
switch_1_res,switch_2_res,switch_3_res,switch_4_res,switch_5_res,switch_6_res,switch_7_res,switch_8_res,switch_9_res,switch_10_res,switch_11_res,switch_12_res
```

**Parameter**

- `switch_n_com`: Offset-n On/Off
  - ON|1: On
  - Off|0: Off
- `switch_n_res`: Offset-n On/Off
  - 1: Offset-n is On.
  - 0: Offset-n is Off.

**Example of Use**

To set the offset.

```
SEM:OFFS:LIST:STAT
ON,ON,ON,OFF,OFF,ON,ON,ON,OFF,OFF
SEM:OFFS:LIST:STAT?
> 1,1,1,0,0,1,1,1,1,0,0
```
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Spectrum Emission Mask Offset Stop Frequency Absolute Limit Level

Function

This command sets the absolute level upper limit of the offset stop frequency for Spectrum Emission Mask measurement.

Command

SEM:OFFS:LIST:STOP:ABS
integer,ampl_1[,ampl_2[,ampl_3[,ampl_4[,ampl_5[,ampl_6[,ampl_7[,ampl_8[,ampl_9[,ampl_10[,ampl_11[,ampl_12]]]]]]]]]]]

Query


Response

ampl_1,ampl_2,ampl_3,ampl_4,ampl_5,ampl_6,ampl_7,ampl_8,ampl_9,ampl_10,ampl_11,ampl_12

Returns a value of dBm units, without a suffix code.

Parameter

integer  Absolute level
1        Absolute level 1
2        Absolute level 2
ampl_n   Absolute level upper limit of Offset-n stop frequency
   Range  –200 to +50 dBm
   Resolution  0.01 dB
   Suffix code  DBM,DM

   dBm is used when omitted.

Details

ABSolute1 sets the absolute level upper limit 1, and ABSolute2 sets the absolute level upper limit 2.

Example of Use

To set the absolute level upper limit 2 of the stop frequency of the offset.
SEM:OFFS:LIST:STOP:ABS
2,-10,-10,-10,-5,-5,-10,-10,-10,-10,-5,-5,-10
>
-10.00,-10.00,-10.00,-5.00,-5.00,-10.00,-10.00,-10.00,-10.00,-10.00,-5.00,-5.00,-10.00
Spectrum Emission Mask Offset Stop Frequency Limit Level

Function

This command sets the relative level upper limit of the offset stop frequency for Spectrum Emission Mask measurement.

Command

SEM:OFFS:LIST:STOP:RCAR
ampl_1[,ampl_2[,ampl_3[,ampl_4[,ampl_5[,ampl_6[,ampl_7[,ampl_8[,ampl_9[,ampl_10[,ampl_11[,ampl_12]]]]]]]]]]]

Query

SEM:OFFS:LIST:STOP:RCAR?

Response

ampl_1,ampl_2,ampl_3,ampl_4,ampl_5,ampl_6,ampl_7,ampl_8,
ampl_9,ampl_10,ampl_11,ampl_12

Returns a value of dB units, without a suffix code.

Parameter

ampl_n Relative level upper limit of Offset-n stop frequency
Range –200 to +50 dBm
Resolution 0.01 dB
Suffix code DB
dB is used when omitted.

Example of Use

To set the absolute level upper limit 2 of the stop frequency of the offset.
SEM:OFFS:LIST:STOP:RCAR
-30,-30,-30,-30,-30,-30,-30,-30,-30,-30,-30,-30
SEM:OFFS:LIST:STOP:RCAR?
>
-30.00,-30.00,-30.00,-30.00,-30.00,-30.00,-30.00,-30.00,
-30.00,-30.00,-30.00,-30.00
Spectrum Emission Mask Offset Trace Point

Function
This command sets the number of the frequency points of the offset for Spectrum Emission Mask measurement.

Command
SEM:OFFS:LIST:SWE:POIN
integer_1[,integer_2[,integer_3[,integer_4[,integer_5[,integer_6[,integer_7[,integer_8[,integer_9[,integer_10[,integer_11[,integer_12]]]]]]]]]]

Query
SEM:OFFS:LIST:SWE:POIN?

Response
integer_1,integer_2,integer_3,integer_4,integer_5,integer_6,integer_7,integer_8,integer_9,integer_10,integer_11,integer_12

Parameter
integer_n  Number of frequency points of Offset·n
Range  11, 21, 41, 51, 101, 201, 251, 401, 501, 1001, 2001, 5001, 10001, 30001 (MS269xA, MS2830A, MS2840A Only)
Suffix code  None

Example of Use
To set the frequency point of the offset.
SEM:OFFS:LIST:SWE:POIN
SEM:OFFS:LIST:SWE:POIN?
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Spectrum Emission Mask Offset Sweep Time

Function

This command sets the sweep time of the offset for Spectrum Emission Mask measurement.

Command

SEM:OFFS:LIST:SWE:TIME
time_1[,time_2[,time_3[,time_4[,time_5[,time_6[,time_7[,
time_8[,time_9[,time_10[,time_11[,time_12]]]]]]]]]]]]]]]

Query

SEM:OFFS:LIST:SWE:TIME?

Response

time_1,time_2,time_3,time_4,time_5,time_6,time_7,time_8,
time_9,time_10,time_11,time_12

Returns a value of s units, without a suffix code.

Parameter

time_n  Sweep time of Offset-n

Range

[MS269xA]  2 ms to 1000 s
[MS2830A]  1 ms to 1000 s
[MS2840A]  1 ms to 1000 s
[MS2850A]  1 ms to 1000 s

Resolution  1 ms (time_n ≤ 1 s)
            0.1 s (1 s < time_n < 10 s)
            1 s (10 s ≤ time_n)

Suffix code  NS,US,MS,S
            S is used when omitted.

Details

The setting range of this function is limited depending on the settings of other parameters. Refer to MS2690A/MS2691A/MS2692A Signal Analyzer Operation Manual (Spectrum Analyzer Function Operation) or MS2830A/MS2840A/MS2850A Signal Analyzer Operation Manual (Spectrum Analyzer Function Operation) for details.

Example of Use

To set the sweep time of the offset.

SEM:OFFS:LIST:SWE:TIME
40MS,40MS,40MS,40MS,40MS,40MS,40MS,40MS,40MS,40MS,40MS
SEM:OFFS:LIST:SWE:TIME?
>
0.040000,0.040000,0.040000,0.040000,0.040000,0.040000,0.040000,0.040000,0.040000,0.040000,0.040000
Spectrum Emission Mask Offset Sweep Time Auto/Manual

Function
This command sets the sweep time of the offset for Spectrum Emission Mask measurement automatically.

Command
SEM:OFFS:LIST:SWE:TIME:AUTO
switch_1_com[,switch_2_com[,switch_3_com[,switch_4_com[,switch_5_com[,switch_6_com[,switch_7_com[,switch_8_com[,switch_9_com[,switch_10_com[,switch_11_com[,switch_12_com]]]]]]]]]]]

Query
SEM:OFFS:LIST:SWE:TIME:AUTO?

Response
switch_1_res,switch_2_res,switch_3_res,switch_4_res,switch_5_res,switch_6_res,switch_7_res,switch_8_res,switch_9_res,switch_10_res,switch_11_res,switch_12_res

Parameter

<table>
<thead>
<tr>
<th>switch_n_com</th>
<th>Automatic setting of the sweep time of Offset-n</th>
</tr>
</thead>
<tbody>
<tr>
<td>ON</td>
<td>1</td>
</tr>
<tr>
<td>OFF</td>
<td>0</td>
</tr>
<tr>
<td>switch_n_res</td>
<td>Automatic setting of the sweep time of Offset-n</td>
</tr>
<tr>
<td>1</td>
<td>Enables the automatic setting function.</td>
</tr>
<tr>
<td>0</td>
<td>Disables the automatic setting function.</td>
</tr>
</tbody>
</table>

Details
The setting range of this function is limited depending on the settings of other parameters. Refer to MS2690A/MS2691A/MS2692A Signal Analyzer Operation Manual (Spectrum Analyzer Function Operation) or MS2830A/MS2840A/MS2850A Signal Analyzer Operation Manual (Spectrum Analyzer Function Operation) for details.

Example of Use
To set the sweep time of the offset automatically.
SEM:OFFS:LIST:SWE:TIME:AUTO
OFF,OFF,OFF,OFF,OFF,OFF,OFF,OFF,OFF,OFF,OFF,OFF
SEM:OFFS:LIST:SWE:TIME:AUTO?
> 0,0,0,0,0,0,0,0,0,0,0,0
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Spectrum Emission Mask Offset Auto Sweep Time Select

Function

This command sets the Normal/Fast mode in the case that the sweep time of the offset for Spectrum Emission Mask measurement is Auto.

Command

mode_1[,mode_2[,mode_3[,mode_4[,mode_5[,mode_6[,mode_7[,mode_8[,mode_9[,mode_10[,mode_11[,mode_12]]]]]]]]]]]]]

Query


Response

mode_1,mode_2,mode_3,mode_4,mode_5,mode_6,mode_7,mode_8,
mode_9,mode_10,mode_11,mode_12

Parameter

mode_n  Normal/Fast of sweep time of Offset-n
   NORM   Normal sweep time
   FAST   High-speed sweep mode

Example of Use

To set the sweep mode in the case that the sweep time of the offset is Auto.
NORM,NORM,NORM,NORM,NORM,NORM,NORM,NORM,NORM,NORM,NORM,NORM
>
NORM,NORM,NORM,NORM,NORM,NORM,NORM,NORM,NORM,NORM,NORM,NORM
Spectrum Emission Mask Offset Sweep Type Select Rules Real FFT Width Query

Function
This command queries the FFT width that is actually used for the sweep/FFT switch rule during offset measurement in the Spectrum Emission Mask measurement.

Query

Response
freq_1,freq_2,freq_3,freq_4,freq_5,freq_6,freq_7,freq_8,
freq_9,freq_10,freq_11,freq_12

Parameter
Freq_n  FFT width
Range    40 kHz or 2 MHz
Resolution  1 Hz
Suffix code  None. Value is returned in Hz units.

Details
This command is not available for MS269x Series. Though the specified width is used as the FFT width on a priority basis, it is changed automatically according to the SPAN/RBW/VBW measurement conditions. This command queries the FFT width that is actually used.

Example of Use
To query the FFT width that is actually used.
> 40000, 40000, 40000, 40000, 40000, 40000, 40000, 40000,
40000, 40000, 40000, 40000
SEM:OFFS:LIST:SWE:RUL:RTYP?
Spectrum Emission Mask Sweep Type Select Rules Real Type Query

Function

This command queries the sweep mode (sweep or FFT) that is executed during reference power measurement in the Spectrum Emission Mask measurement.

Query

SEM:OFFS:LIST:SWE:RUL:RTYP?

Response

type_1,type_2,type_3,type_4,type_5,type_6,type_7,type_8,
type_9,type_10,type_11,type_12

Parameter

<table>
<thead>
<tr>
<th>Type_n</th>
<th>Sweep mode</th>
</tr>
</thead>
<tbody>
<tr>
<td>SWE</td>
<td>Performs measurement using sweep.</td>
</tr>
<tr>
<td>FFT</td>
<td>Performs measurement using FFT.</td>
</tr>
</tbody>
</table>

Details

This command is not available for MS269x Series.

Example of Use

To query the sweep mode used for measurement under the current setting.

SEM:OFFS:LIST:SWE:RUL:RTYP?
> FFT,FFT,FFT,FFT,FFT,FFT,FFT,FFT,FFT,FFT,FFT,FFT
SEM:OFFS:SIDE/SEM:OFFS:SIDE?

Spectrum Emission Mask Limit Side

Function

This command selects the judging area for Spectrum Emission Mask measurement.

Command

SEM:OFFS:SIDE side

Query

SEM:OFFS:SIDE?

Response

side

Parameter

side

Judging area

BOTH

Upper/Lower offset

POS

Upper offset

NEG

Lower offset

Example of Use

To set the upper offset as the judging area.

SEM:OFFS:SIDE POS
SEM:OFFS:SIDE?
> POS
**SEM:RAC/SEM:RAC?**

**Couple Ref & ATT**

**Function**
This command enables/disables sharing of the Reference Level and Attenuator settings for the Spectrum Emission Mask measurement.

**Command**
SEM:RAC switch_com

**Query**
SEM:RAC?

**Response**
switch_res

**Parameter**

<table>
<thead>
<tr>
<th>Parameter</th>
<th>Setting sharing On/OFF</th>
</tr>
</thead>
<tbody>
<tr>
<td>switch_com</td>
<td>Setting sharing On/OFF</td>
</tr>
<tr>
<td>ON</td>
<td>1</td>
</tr>
<tr>
<td>OFF</td>
<td>0</td>
</tr>
</tbody>
</table>

<table>
<thead>
<tr>
<th>Parameter</th>
<th>Setting sharing On/Off</th>
</tr>
</thead>
<tbody>
<tr>
<td>switch_res</td>
<td>Setting sharing On/Off</td>
</tr>
<tr>
<td>1</td>
<td>On</td>
</tr>
<tr>
<td>0</td>
<td>Off</td>
</tr>
</tbody>
</table>

**Details**
The values set in Reference Level and Attenuator of Reference Setup are set to those of Offset Setup, when this function is set to On.

**Example of Use**
To set the shared setting of Reference Level and Attenuator for Spectrum Emission Mask measurement to On.

SEM:RAC ON
SEM:RAC?
> 1
SEM:SWE:POIN/SEM:SWE:POIN?
Spectrum Emission Mask Trace Point

Function

This command selects the frequency display point in measuring the reference power for Spectrum Emission Mask measurement.

Command

SEM:SWE:POIN integer

Query

SEM:SWE:POIN?

Response

integer

Parameter

integer Number of frequency point
Range 11, 21, 41, 51, 101, 201, 251, 401, 501, 1001, 2001, 5001, 10001, 30001 (MS269xA, MS2830A, MS2840A Only)
Suffix code None

Example of Use

To set the frequency display point number in measuring the reference power to 2001.
SEM:SWE:POIN 2001
SEM:SWE:POIN?
> 2001
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SEM:SWE:RUL:FFT:RWID?
Spectrum Emission Mask Sweep Type Select Rules Real FFT Width Query

Function

This command queries the FFT width that is actually used for the sweep/FFT switch rule during reference power measurement in the Spectrum Emission Mask measurement.

Query

SEM:SWE:RUL:FFT:RWID?

Response

freq  FFT width
Range  40 kHz or 2 MHz
Resolution  1 Hz
Suffix code  None. Value is returned in Hz units.

Details

This command is not available for MS269x Series. Though the specified width is used as the FFT width on a priority basis, it is changed automatically according to the SPAN/RBW/VBW measurement conditions. This command queries the FFT width that is actually used.

Example of Use

To query the FFT width that is actually used.
SEM:SWE:RUL:FFT:RWID?
> 40000
**SEM:SWE:RUL:RTYP?**

Spectrum Emission Mask Sweep Type Select Rules Real Type Query

**Function**

This command queries the sweep mode (sweep or FFT) that is executed during reference power measurement in the Spectrum Emission Mask measurement.

**Query**

```
SEM:SWE:RUL:RTYP?
```

**Response**

```
type
```

**Parameter**

<table>
<thead>
<tr>
<th>type</th>
<th>Sweep mode</th>
</tr>
</thead>
<tbody>
<tr>
<td>SWE</td>
<td>Performs measurement using sweep.</td>
</tr>
<tr>
<td>FFT</td>
<td>Performs measurement using FFT.</td>
</tr>
</tbody>
</table>

**Details**

This command is not available for MS269x Series.

**Example of Use**

To query the sweep mode used for measurement under the current setting.

```
SEM:SWE:RUL:RTYP?
```

```
> FFT
```
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SEM:SWE:TIME/SEM:SWE:TIME?
Spectrum Emission Mask Sweep Time

**Function**

This command sets the sweep time in measuring the reference power for Spectrum Emission Mask measurement.

**Command**

`SEM:SWE:TIME time`

**Query**

`SEM:SWE:TIME?`

**Response**

`time`

Returns a value of s units, without a suffix code.

**Parameter**

- **time**: Sweep time
  - **Range**:
    - [MS269xA]: 2 ms to 1000 s
    - [MS2830A]: 1 ms to 1000 s
    - [MS2840A]: 1 ms to 1000 s
    - [MS2850A]: 1 ms to 1000 s
  - **Resolution**:
    - 1 ms (time ≤ 1 s)
    - 0.1 s (1 s < time < 10 s)
    - 1 s (10 s ≤ time)
  - **Suffix code**: NS,US,MS,S
    - S is used when omitted.

**Details**

The setting range of this function is limited depending on the settings of other parameters. Refer to *MS2690A/MS2691A/MS2692A Signal Analyzer Operation Manual (Spectrum Analyzer Function Operation)* or *MS2830A/MS2840A/MS2850A Signal Analyzer Operation Manual (Spectrum Analyzer Function Operation)* for details.

**Example of Use**

To set the sweep time in measuring the reference power to 20 ms.

```
SEM:SWE:TIME 20MS
SEM:SWE:TIME?
> 0.020000
```
**SEM:SWE:TIME:AUTO?**

Spectrum Emission Mask Sweep Time Auto/Manual

**Function**

This command sets the sweep time in measuring the reference power for Spectrum Emission Mask measurement.

**Command**

SEM:SWE:TIME:AUTO switch_com

**Query**

SEM:SWE:TIME:AUTO?

**Response**

switch_res

**Parameter**

- **switch_com**
  - ON|1  Enables the automatic setting function.
  - OFF|0  Disables the automatic setting function.

- **switch_res**
  - 1  Enables the automatic setting function.
  - 0  Disables the automatic setting function.

**Details**

The setting range of this function is limited depending on the settings of other parameters. Refer to *MS2690A/MS2691A/MS2692A Signal Analyzer Operation Manual (Spectrum Analyzer Function Operation)* or *MS2830A/MS2840A/MS2850A Signal Analyzer Operation Manual (Spectrum Analyzer Function Operation)* for details.

**Example of Use**

To set the sweep time in measuring the reference power automatically.

```plaintext
SEM:SWE:TIME:AUTO ON
SEM:SWE:TIME:AUTO?
> 1
```
SEM:SWE:TIME:AUTO:MODE?  
Spectrum Emission Mask Auto Sweep Time Select

Function
This command sets the Normal/Fast mode in the case that the sweep time in measuring the reference power for Spectrum Emission Mask measurement is Auto.

Command
SEM:SWE:TIME:AUTO:MODE mode

Query
SEM:SWE:TIME:AUTO:MODE?

Response
mode

Parameter
mode          Normal/Fast of sweep time
NORM          Normal sweep time
FAST          High-speed sweep mode

Example of Use
To set the sweep mode in the case that the sweep time in measuring the reference power is Auto to FAST.
SEM:SWE:TIME:AUTO:MODE FAST
SEM:SWE:TIME:AUTO:MODE?
> FAST
SEM:TYPE/SEM:TYPE?
Spectrum Emission Mask Reference Type

Function
This command sets the reference for Spectrum Emission Mask measurement.

Command
SEM:TYPE type

Query
SEM:TYPE?

Response
type

Parameter
type

Type of reference
TPR
Uses the reference power as the integral power in Channel BW.
PKR
Uses the reference power as the peak power in Channel BW.
FIX
Uses the reference power as the fixed value.

Example of Use
To set the reference power to the integral power in Channel BW.
SEM:TYPE TPR
SEM:TYPE?
> TPR
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SIGID/SIGID?
Signal Identifier

Function
This command enables/disables signal identifier operation, which identifies measured signal and image signal when external mixer is used.

Command
SIGID switch

Query
SIGID?

Response
switch

Parameter

<table>
<thead>
<tr>
<th>switch</th>
<th>Signal ID</th>
</tr>
</thead>
<tbody>
<tr>
<td>1</td>
<td>Selects signal ID.</td>
</tr>
<tr>
<td>0</td>
<td>Does not select signal ID.</td>
</tr>
</tbody>
</table>

Details
This function is available when Option 044/045 is installed for MS2830A. This function is available when Option 044/046 is installed for MS2840A. This function is readily available for MS2850A. Signal ID cannot be set to On when the PS function is On. Signal ID cannot be set to On when the Measure function is On. Signal ID cannot be set to On when the Math function is other than Off.

Example of Use
To sweep while identifying measured signal and image signal.
SIGID 1
SIGID?
> 1
SMA/SMA?
Write and Query Trace Data (Trace A)

Function

This command writes and queries the trace data of Trace A. This function targets negative detection trace data when the detection mode is Positive & Negative (Normal mode).

Command

SMA wpoint,data

Query

SMA? start,number

Response

data1,data2,...,data(n)

Parameter

wpoint Specify the writing position as the number of displayed points from the left edge of the screen.

Range 0 to 10, 20, 40, 50, 100, 200, 250, 400, 500, 1000, 2000, 5000, 10000, 30000 (MS269xA, MS2830A, MS2840A Only)

data Level data to be written

data(n) Queried level data

Resolution Integers in 0.001 dB units (At log scale)

\{\text{Voltage value (V)} / \text{Reference level (V)}\} \times 10000 (At linear scale)

Suffix code None

Value is returned in 0.001 dBm units at log scale.

Value is returned in V units at linear scale.

start Specify the loading start position as the number of displayed points from the left edge of the screen.

Range 0 to 10, 20, 40, 50, 100, 200, 250, 400, 500, 1000, 2000, 5000, 10000, 30000 (MS269xA, MS2830A, MS2840A Only)

number Number of data to be loaded

Range 1 to 11, 21, 41, 51, 101, 201, 251, 401, 501, 1001, 2001, 5001, 10001, 30001 (MS269xA, MS2830A, MS2840A Only)
Convert unit
For conversion into dBµV, dBmV, V, W, dBµV (emf), and dBµV/m at log scale, refer to the following.

Impedance 50 Ω (D: Queried level data)
- dBµV: \( \frac{D}{1000} + 106.99 \)
- dBmV: \( \frac{D}{1000} + 46.99 \)
- V: \( \sqrt{\left(50 \times 10^{\left(\frac{D}{1000}\right)}\right)} \)
- W: \( 10^{\left(\frac{D}{1000}\right)} \)
- dBµV (emf): \( \frac{D}{1000} + 106.99 + 6.02 \)
- dBµV/m: \( \frac{D}{1000} + 106.99 \)

Impedance 75 Ω (D: Queried level data)
- dBµV: \( \frac{D}{1000} + 108.75 \)
- dBmV: \( \frac{D}{1000} + 48.75 \)
- V: \( \sqrt{\left(75 \times 10^{\left(\frac{D}{1000}\right)}\right)} \)
- W: \( 10^{\left(\frac{D}{1000}\right)} \)
- dBµV (emf): \( \frac{D}{1000} + 108.75 + 6.02 \)
- dBµV/m: \( \frac{D}{1000} + 108.75 \)

Details
This command is not available during the Spectrum Emission Mask measurement.

Example of Use
To set –20 dBm at the 1st point and –21 dBm at the 2nd point.
SMA 1,-20000
SMA 2,-21000
SMA? 1,2
> -20000,-21000
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SMB/SMB?
Write and Query Trace Data (Trace B)

Function

This command writes and queries the trace data of Trace B. This function targets negative detection trace data when the detection mode is Positive & Negative (Normal mode).

Command

SMB wpoint,data

Query

SMB? start,number

Response

data1,data2,...,data(n)

Parameter

wpoint  Specify the writing position as the number of displayed points from the left edge of the screen.

Range  0 to 10, 20, 40, 50, 100, 200, 250, 400, 500, 1000, 2000, 5000, 10000, 30000 (MS269xA, MS2830A, MS2840A Only)

data  Level data to be written

data(n)  Queried level data

Resolution  Integers in 0.001 dB units (At log scale)

{Voltage value (V) / Reference level (V)} \times 10000  (At linear scale)

Suffix code  None

Value is returned in 0.001 dBm units at log scale.

Value is returned in V units at linear scale.

start  Specify the loading start position as the number of displayed points from the left edge of the screen.

Range  0 to 10, 20, 40, 50, 100, 200, 250, 400, 500, 1000, 2000, 5000, 10000, 30000 (MS269xA, MS2830A, MS2840A Only)

number  Number of data to be loaded

Range  1 to 11, 21, 41, 51, 101, 201, 251, 401, 501, 1001, 2001, 5001, 10001, 30001 (MS269xA, MS2830A, MS2840A Only)

Convert unit  For conversion into dBµV, dBmV, V, W, dBµV (emf), and dBµV/m at log scale, refer to “Convert unit” of “Parameter” of “SMA/SMA?” command.
This command is not available during the Spectrum Emission Mask measurement.

Example of Use

To set –20 dBm at the 1st point and –21 dBm at the 2nd point.

SMB 1,-20000
SMB 2,-21000
SMB? 1,2
> -20000,-21000
SMC/SMC?
Write and Query Trace Data (Trace C)

Function
This command writes and queries the trace data of Trace C. This function targets negative detection trace data when the detection mode is Positive & Negative (Normal mode).

Command
SMC wpoint,data

Query
SMC? start,number

Response
data1,data2,...,data(n)

Parameter

**wpoint**
Specify the writing position as the number of displayed points from the left edge of the screen.

**Range**
0 to 10, 20, 40, 50, 100, 200, 250, 400, 500, 1000, 2000, 5000, 10000, 30000 (MS269xA, MS2830A, MS2840A Only)

**data**
Level data to be written

**data(n)**
Queried level data

**Resolution**
Integers in 0.001 dB units (At log scale)

\[
\frac{\text{Voltage value (V)}}{\text{Reference level (V)}} \times 10000
\]
(At linear scale)

**Suffix code**
None

Value is returned in 0.001 dBm units at log scale.
Value is returned in V units at linear scale.

**start**
Specify the loading start position as the number of displayed points from the left edge of the screen.

**Range**
0 to 10, 20, 40, 50, 100, 200, 250, 400, 500, 1000, 2000, 5000, 10000, 30000 (MS269xA, MS2830A, MS2840A Only)

**number**
Number of data to be loaded

**Range**
1 to 11, 21, 41, 51, 101, 201, 251, 401, 501, 1001, 2001, 5001, 10001, 30001 (MS269xA, MS2830A, MS2840A Only)

**Convert unit**
For conversion into dBμV, dBmV, V, W, dBμV (emf), and dBμV/m at log scale, refer to “Convert unit” of “Parameter” of “SMA/SMA?” command.
Details

This command is not available during the Spectrum Emission Mask measurement.

Example of Use

To set –20 dBm to point 1 and –21 dBm to point 2.

SMC 1,–20000
SMC 2,–21000
SMC? 1,2
> –20000,–21000
**SMD/SMD?**

**Write and Query Trace Data (Trace D)**

**Function**

This command writes and queries the trace data of Trace D. This function targets negative detection trace data when the detection mode is Positive & Negative (Normal mode).

**Command**

SMD wpoint,data

**Query**

SMD? start,number

**Response**

data1,data2,...,data(n)

**Parameter**

- **wpoint**: Specify the writing position as the number of displayed points from the left edge of the screen.
  - Range: 0 to 10, 20, 40, 50, 100, 200, 250, 400, 500, 1000, 2000, 5000, 10000, 30000 (MS269xA, MS2830A, MS2840A Only)
- **data**: Level data to be written
- **data(n)**: Queried level data
  - Resolution: Integers in 0.001 dB units (At log scale) \(\frac{\text{Voltage value (V)}}{\text{Reference level (V)}} \times 10000\) (At linear scale)
  - **Suffix code**: None
- **Start**: Specify the loading start position as the number of displayed points from the left edge of the screen.
  - Range: 0 to 10, 20, 40, 50, 100, 200, 250, 400, 500, 1000, 2000, 5000, 10000, 30000 (MS269xA, MS2830A, MS2840A Only)
- **number**: Number of data to be loaded
  - Range: 1 to 11, 21, 41, 51, 101, 201, 251, 401, 501, 1001, 2001, 5001, 10001, 30001 (MS269xA, MS2830A, MS2840A Only)
- **Convert unit**: For conversion into dBµV, dBmV, V, W, dBµV (emf), and dBµV/m at log scale, refer to “Convert unit” of “Parameter” of “SMA/SMA?” command.
Details

This command is not available in the following cases:
- During the Spectrum Emission Mask measurement.
- During the Spurious Emission measurement.

Example of Use

To set –20 dBm at the first point and set –21 dBm at the second point.

SMD 1, -20000
SMD 2, -21000
SMD? 1, 2
> -20000, -21000
SME/SME?
Write and Query Trace Data (Trace E)

Function
This command writes and queries the trace data of Trace E. This function targets negative detection trace data when the detection mode is Positive & Negative (Normal mode).

Command
SME wpoint,data

Query
SME? start,number

Response
data1,data2,...,data(n)

Parameter
wpoint
Specify the writing position as the number of displayed points from the left edge of the screen.
Range
0 to 10, 20, 40, 50, 100, 200, 250, 400, 500, 1000, 2000, 5000, 10000, 30000 (MS269xA, MS2830A, MS2840A Only)
data
Level data to be written
data(n)
Queried level data
Resolution
Integers in 0.001 dB units (At log scale)
(Voltage value (V) / Reference level (V)) \times 10000
(At linear scale)
Suffix code
None
Value is returned in 0.001 dBm units at log scale.
Value is returned in V units at linear scale.
start
Specify the loading start position as the number of displayed points from the left edge of the screen.
Range
0 to 10, 20, 40, 50, 100, 200, 250, 400, 500, 1000, 2000, 5000, 10000, 30000 (MS269xA, MS2830A, MS2840A Only)
number
Number of data to be loaded
Range
1 to 11, 21, 41, 51, 101, 201, 251, 401, 501, 1001, 2001, 5001, 10001, 30001 (MS269xA, MS2830A, MS2840A Only)
Convert unit
For conversion into dBµV, dBmV, V, W, dBµV (emf), and dBµV/m at log scale, refer to “Convert unit” of “Parameter” of “SMA/SMA?” command.
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Details

This command is not available in the following cases:

- During the Spectrum Emission Mask measurement.
- During the Spurious Emission measurement.

Example of Use

To set –20 dBm at the first point and set –21 dBm at the second point.

SME 1,-20000
SME 2,-21000
SME? 1,2
> -20000,-21000
SMF/SMF?
Write and Query Trace Data (Trace F)

Function
This command writes and queries the trace data of Trace F. This function targets negative detection trace data when the detection mode is Positive & Negative (Normal mode).

Command
SMF wpoint,data

Query
SMF? start,number

Response
data1,data2,...,data(n)

Parameter

wpoint Specify the writing position as the number of displayed points from the left edge of the screen.
Range 0 to 10, 20, 40, 50, 100, 200, 250, 400, 500, 1000, 2000, 5000, 10000, 30000 (MS269xA, MS2830A, MS2840A Only)
data Level data to be written
data(n) Queried level data
Resolution Integers in 0.001 dB units (At log scale)
{Voltage value (V) / Reference level (V)} × 10000
(At linear scale)
Suffix code None
Value is returned in 0.001 dBm units at log scale.
Value is returned in V units at linear scale.
start Specify the loading start position as the number of displayed points from the left edge of the screen.
Range 0 to 10, 20, 40, 50, 100, 200, 250, 400, 500, 1000, 2000, 5000, 10000, 30000 (MS269xA, MS2830A, MS2840A Only)
number Number of data to be loaded
Range 1 to 11, 21, 41, 51, 101, 201, 251, 401, 501, 1001, 2001, 5001, 10001, 30001 (MS269xA, MS2830A, MS2840A Only)

Convert unit
For conversion into dBµV, dBmV, V, W, dBµV (emf), and dBµV/m at log scale, refer to “Convert unit” of “Parameter” of “SMA/SMA?” command.
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Details

This command is not available in the following cases:

- During the Spectrum Emission Mask measurement.
- During the Spurious Emission measurement.

Example of Use

To set −20 dBm at the first point and set −21 dBm at the second point.

```
SMF 1,−20000
SMF 2,−21000
SMF? 1,2
> −20000,−21000
```
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SMZ/SMZ?
Write and Query Trace Data (Gate View)

Function

This command writes and queries the trace data for Gate View. This command targets negative detection trace data when the detection mode is Positive & Negative (Normal mode).

Command

SMZ wpoint,data

Query

SMZ? start,number

Response

data1,data2,...,data(n)

Parameter

wpoint  Specify the writing position as the number of displayed points from the left edge of the screen.
Range  0 to 10, 20, 40, 50, 100, 200, 250, 400, 500, 1000, 2000, 5000, 10000, 30000 (MS269xA, MS2830A, MS2840A Only)
data  Level data to be written
data(n)  Queried level data
Resolution  Integers in 0.001 dB units (on log scale).
{Voltage value (V) / Reference level (V)} × 10000 (At linear scale)
Suffix code  None
Value is returned in 0.001 dBm units at log scale.
Value is returned in V units at linear scale.
start  Specify the loading start position as the number of displayed points from the left edge of the screen.
Range  0 to 10, 20, 40, 50, 100, 200, 250, 400, 500, 1000, 2000, 5000, 10000, 30000 (MS269xA, MS2830A, MS2840A Only)
number  Number of data to be loaded
Range  1 to 11, 21, 41, 51, 101, 201, 251, 401, 501, 1001, 2001, 5001, 10001, 30001 (MS269xA, MS2830A, MS2840A Only)

Convert unit
For conversion into dBµV, dBmV, V, W, dBµV (emf), and dBµV/m at log scale, refer to “Convert unit” of “Parameter” of “SMA/SMA?” command.
Details

This command is not available when Gate View is set to Off.

Example of Use

To set \(-20\) dBm at the 1st point and \(-21\) dBm at the 2nd point.

```
SMZ 1,-20000
SMZ 2,-21000
SMZ? 1,2
> -20000,-21000
```
SNGLS

Single Sweep Mode

Function

This command sets the sweep mode to Single and start the single sweep.

Command

SNGLS

Details

Starting sweep with this function executes the following command during sweep.
To read out the measurement results after executing this command, perform the synchronization control using the “*WAI” command.

Example of Use

To start single sweep.
SNGLS
SOF/SOF?
Stop Frequency

This command sets the stop frequency.

Command
SOF freq

Query
SOF?

Response
freq

Parameter
freq Stop frequency

Range

[MS269xA] –99.999700 MHz to 6.05 GHz (MS2690A)
–99.999700 MHz to 13.6 GHz (MS2691A)
–99.999700 MHz to 26.6 GHz (MS2692A)

[MS2830A] –99.9997 MHz to 3.7 GHz (Option 040)
–99.9997 MHz to 6.1 GHz (Option 041)
–99.9997 MHz to 13.6 GHz (Option 043)
–99.9997 MHz to 26.6 GHz (Option 044)
–99.9997 MHz to 43.1 GHz (Option 045)

[MS2840A] –99.9997 MHz to 3.7 GHz (Option 040)
–99.9997 MHz to 6.1 GHz (Option 041)
–99.9997 MHz to 27 GHz (Option 044)
–99.9997 MHz to 45 GHz (Option 046)

[MS2850A] –99.9997 MHz to 32.5 GHz (Option 047)
–99.9997 MHz to 45 GHz (Option 046)

Resolution 1 Hz

Suffix code HZ, KHZ, KZ, MHZ, MZ, GHZ, GZ

Hz is used when omitted.

Details
This command is not available during the Spectrum Emission Mask or the Spurious Emission measurement. When Signal Generator Control is On, the stop frequency range depends on the frequency range of Signal Generator.

Example of Use
To set the stop frequency to 123.456 kHz.
SOF 123456
SOF 123456HZ
SOF 123.456KHZ
SOF 0.123456MHZ
SOF?
> 123456
**SPF/SPF?**  
Frequency Span

**Function**

This command sets the frequency span.

**Command**

`SPF freq`

**Query**

`SPF?`

**Response**

`freq`

No suffix code. Value is returned in Hz units.

**Parameter**

<table>
<thead>
<tr>
<th>freq</th>
<th>Frequency span</th>
</tr>
</thead>
<tbody>
<tr>
<td><strong>Range</strong></td>
<td></td>
</tr>
<tr>
<td><strong>[MS269xA]</strong></td>
<td>0 Hz, 300 Hz to 6.15 GHz (MS2690A)</td>
</tr>
<tr>
<td></td>
<td>0 Hz, 300 Hz to 13.7 GHz (MS2691A)</td>
</tr>
<tr>
<td></td>
<td>0 Hz, 300 Hz to 26.7 GHz (MS2692A)</td>
</tr>
<tr>
<td><strong>[MS2830A]</strong></td>
<td>0 Hz, 300 Hz to 3.8 GHz (Option 040)</td>
</tr>
<tr>
<td></td>
<td>0 Hz, 300 Hz to 6.2 GHz (Option 041)</td>
</tr>
<tr>
<td></td>
<td>0 Hz, 300 Hz to 13.7 GHz (Option 043)</td>
</tr>
<tr>
<td></td>
<td>0 Hz, 300 Hz to 26.7 GHz (Option 044)</td>
</tr>
<tr>
<td></td>
<td>0 Hz, 300 Hz to 43.2 GHz (Option 045)</td>
</tr>
<tr>
<td><strong>[MS2840A]</strong></td>
<td>0 Hz, 300 Hz to 3.8 GHz (Option 040)</td>
</tr>
<tr>
<td></td>
<td>0 Hz, 300 Hz to 6.2 GHz (Option 041)</td>
</tr>
<tr>
<td></td>
<td>0 Hz, 300 Hz to 27.1 GHz (Option 044)</td>
</tr>
<tr>
<td></td>
<td>0 Hz, 300 Hz to 45.1 GHz (Option 046)</td>
</tr>
<tr>
<td><strong>[MS2850A]</strong></td>
<td>0 Hz, 300 Hz to 32.6 GHz (Option 047)</td>
</tr>
<tr>
<td></td>
<td>0 Hz, 300 Hz to 45.1 GHz (Option 046)</td>
</tr>
<tr>
<td><strong>Resolution</strong></td>
<td>2 Hz</td>
</tr>
<tr>
<td></td>
<td>(Trace Point – 1) Hz</td>
</tr>
<tr>
<td></td>
<td>(When Signal Generator Control is On.)</td>
</tr>
<tr>
<td><strong>Suffix code</strong></td>
<td>HZ, KHZ, KZ, MHZ, MZ, GHZ, GZ</td>
</tr>
<tr>
<td></td>
<td>Hz is used when omitted.</td>
</tr>
</tbody>
</table>

**Details**

This command is not available in the following cases:

- During the Spectrum Emission Mask measurement
- During the Spurious Emission measurement

Frequency span cannot be set to 0 Hz when Signal Generator Control is On.

Frequency span cannot be set to 0 Hz when the N dB Bandwidth measurement function is On.

**Example of Use**
To set the frequency span to 123.456 kHz.

SFF 123456
SFF 123456HZ
SFF 123.456KHZ
SFF 0.123456MHZ
SFF?
> 123456
SPUR/SPUR?
Measure Spurious Emission

Function
This command executes the Spurious Emission measurement.

Command
SPUR switch_com

Query
SPUR?

Response
switch_res

Parameter
<table>
<thead>
<tr>
<th>switch_com</th>
<th>Description</th>
</tr>
</thead>
<tbody>
<tr>
<td>ON</td>
<td>1</td>
</tr>
<tr>
<td>OFF</td>
<td>0</td>
</tr>
<tr>
<td>switch_res</td>
<td>Spurious measurement On/Off</td>
</tr>
<tr>
<td>1</td>
<td>Spurious measurement is enabled.</td>
</tr>
<tr>
<td>0</td>
<td>Spurious measurement is disabled.</td>
</tr>
</tbody>
</table>

Details
This command is not available in the following cases:
- When Scale Mode is set to Lin.
- In Time Domain mode
When Spurious Emission measurement is set to On, the active trace is set to A.

Example of Use
To set the Spurious measurement to On.
SPUR ON
SPUR?
> 1
**SPUR:ATT/SPUR:ATT?**

Spurious Emission Attenuator

**Function**
This command sets the attenuator value of each segment.

**Command**
```plaintext
SPUR:ATT
rel_ampl_1|AUTO,rel_ampl_2|AUTO,rel_ampl_3|AUTO,rel_ampl_4|AUTO,rel_ampl_5|AUTO,rel_ampl_6|AUTO,rel_ampl_7|AUTO,
rel_ampl_8|AUTO,rel_ampl_9|AUTO,rel_ampl_10|AUTO,rel_ampl_11|AUTO,rel_ampl_12|AUTO,rel_ampl_13|AUTO,rel_ampl_14|AUTO,rel_ampl_15|AUTO,rel_ampl_16|AUTO,rel_ampl_17|AUTO,
rel_ampl_18|AUTO,rel_ampl_19|AUTO,rel_ampl_20|AUTO
```

**Query**
```
SPUR:ATT?
```

**Response**
```
rel_ampl_1,rel_ampl_2,rel_ampl_3,rel_ampl_4,rel_ampl_5,rel_ampl_6,rel_ampl_7,rel_ampl_8,rel_ampl_9,rel_ampl_10,rel_ampl_11,rel_ampl_12,rel_ampl_13,rel_ampl_14,rel_ampl_15,rel_ampl_16,rel_ampl_17,rel_ampl_18,rel_ampl_19,rel_ampl_20
```

Value is returned in DB units, without suffix code.

**Parameter**
- **rel_ampl_n**: Attenuator value of Segment n
  - **Range**: 0 to 60 dB
  - **Resolution**:
    - [MS269xA, MS2850A]: 2 dB
    - [MS2830A, MS2840A]: 2 dB or 10 dB
  - Refer to “Table 2.4.2-3 Resolution of Input Attenuator” in the MS2830A/MS2840A/MS2850A Signal Analyzer Operation Manual (Spectrum Analyzer Function Operation).
  - **Suffix code**: DB, dB is used even when omitted.
  - **AUTO**: Attenuator value is automatically set (Default).

**Example of Use**
To set the attenuator value.
```
SPUR:ATT
10DB,10DB,12DB,AUTO,AUTO,AUTO,AUTO,AUTO,AUTO,AUTO,AUTO,AUTO,AUTO,AUTO,AUTO,AUTO,AUTO,AUTO,AUTO,AUTO,AUTO
SPUR:ATT?
> 10,10,12,10,10,10,10,10,10,10,10,10,10,10,10,10,10,10,10,10
```
**SPUR:AVER:COUN/SPUR:AVER:COUN?**

**Spurious Emission Storage Count**

**Function**

This command sets the storage count of each segment.

**Command**

```
SPUR:AVER:COUN
integer_1,integer_2,integer_3,integer_4,integer_5,integer_6,integer_7,integer_8,integer_9,integer_10,integer_11,integer_12,integer_13,integer_14,integer_15,integer_16,integer_17,integer_18,integer_19,integer_20
```

**Query**

```
SPUR:AVER:COUN?
```

**Response**

```
integer_1,integer_2,integer_3,integer_4,integer_5,integer_6,integer_7,integer_8,integer_9,integer_10,integer_11,integer_12,integer_13,integer_14,integer_15,integer_16,integer_17,integer_18,integer_19,integer_20
```

**Parameter**

<table>
<thead>
<tr>
<th>integer_n</th>
<th>Storage count of Segment n</th>
</tr>
</thead>
<tbody>
<tr>
<td>Range</td>
<td>1 to 9999</td>
</tr>
<tr>
<td>Resolution</td>
<td>1</td>
</tr>
<tr>
<td>Default</td>
<td>10 times</td>
</tr>
</tbody>
</table>

**Example of Use**

To set the storage count of each segment.

```
SPUR:AVER:COUN
10,10,10,20,20,5,5,5,5,5,5,5,10,10,10,10,10,10,10,10,10
SPUR:AVER:COUN?
> 10,10,10,20,20,5,5,5,5,5,5,5,10,10,10,10,10,10,10,10,10
```
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SPUR:AVer:COUN:COUP/SPUR:AVer:COUN:COUP?
Couple Storage Count

Function

This command sets the shared setting of the storage count in each segment to On/Off.

Command

SPUR:AVer:COUN:COUP switch_com

Query

SPUR:AVer:COUN:COUP?

Response

switch_res

Parameter

switch_com  Shared setting On/Off
ON|1  Shared setting is On.
OFF|0  Shared setting is Off.

switch_res  Shared setting On/Off
1  Shared setting is On.
0  Shared setting is Off.

Details

When it is set to On, the storage count set in Displayed segment is set to all the segments.

Example of Use

To set the shared setting of the storage count in each segment to On.
SPUR:AVer:COUN:COUP ON
SPUR:AVer:COUN:COUP?
> 1
SPUR:BAND/SPUR:BAND?
Spurious Emission Resolution Bandwidth

Function
This command sets the resolution bandwidth (RBW) of each segment.

Command
SPUR:BAND
bandwidth_1, bandwidth_2, bandwidth_3, bandwidth_4, bandwidth_5, bandwidth_6, bandwidth_7, bandwidth_8, bandwidth_9, bandwidth_10, bandwidth_11, bandwidth_12, bandwidth_13, bandwidth_14, bandwidth_15, bandwidth_16, bandwidth_17, bandwidth_18, bandwidth_19, bandwidth_20

Query
SPUR:BAND?

Response
bandwidth_1, bandwidth_2, bandwidth_3, bandwidth_4, bandwidth_5, bandwidth_6, bandwidth_7, bandwidth_8, bandwidth_9, bandwidth_10, bandwidth_11, bandwidth_12, bandwidth_13, bandwidth_14, bandwidth_15, bandwidth_16, bandwidth_17, bandwidth_18, bandwidth_19, bandwidth_20
Value is returned in Hz units, without suffix code.

Parameter
bandwidth_n Resolution bandwidth (RBW) of Segment n

[MS269xA]
Range/Resolution 30 Hz to 3 MHz (1-3 sequence), 50 kHz, 5 MHz, 10 MHz, 20 MHz

[MS2830A], [MS2840A], [MS2850A]
Range/Resolution 30 Hz to 3 MHz (1-3 sequence), 500 Hz, 50 kHz, 2 MHz, 5 MHz, 10 MHz, 20 MHz

[Common]
Suffix code HZ, KHZ, KZ, MHZ, MZ, GHZ, GZ
Hz is used when omitted.

Example of Use
To set the resolution bandwidth (RBW) of each segment.
SPUR:BAND
3KHZ, 3KHZ, 10KHZ, 10KHZ, 10KHZ, 10KHZ, 10KHZ, 10KHZ, 3KHZ, 10KHZ, 10KHZ, 10KHZ, 10KHZ, 10KHZ, 10KHZ, 10KHZ, 10KHZ
SPUR:BAND?
> 3000, 3000, 10000, 10000, 10000, 10000, 10000, 10000, 10000, 10000, 10000, 10000, 10000, 10000, 10000, 10000,
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10000

SPUR:BAND:AUTO/SPUR:BAND:AUTO?
Spurious Emission Resolution Bandwidth Auto/Manual

Function
This command sets RBW of each segment to Auto/Manual.

Command
SPUR:BAND:AUTO
switch_1_com,switch_2_com,switch_3_com,switch_4_com,switch_5_com,switch_6_com,switch_7_com,switch_8_com,switch_9_com,switch_10_com,switch_11_com,switch_12_com,switch_13_com,switch_14_com,switch_15_com,switch_16_com,switch_17_com,switch_18_com,switch_19_com,switch_20_com

Query
SPUR:BAND:AUTO?

Response

Parameter
switch_n_com
ON|1  RBW in segment n Auto/Manual
OFF|0  RBW is set to Manual.

switch_n_res
1  RBW in segment n Auto/Manual
0  RBW is set to Manual.

Example of Use
To set RBW to Auto/Manual.
SPUR:BAND:AUTO
ON, ON, ON, ON, ON, OFF, OFF, ON, ON, ON, ON, ON, ON, ON, OFF, OFF, ON
SPUR:BAND:AUTO?
> 1,1,1,1,1,0,0,1,1,1,1,1,1,0,0,1,1
SPUR:BAND:VID/SPUR:BAND:VID?
Spurious Emission Video Bandwidth

Function

This command sets the video bandwidth (VBW) of each segment.

Command

SPUR:BAND:VID
bandwidth_1|OFF,bandwidth_2|OFF,bandwidth_3|OFF,bandwidth_4|OFF,bandwidth_5|OFF,bandwidth_6|OFF,bandwidth_7|OFF,bandwidth_8|OFF,bandwidth_9|OFF,bandwidth_10|OFF,bandwidth_11|OFF,bandwidth_12|OFF,bandwidth_13|OFF,bandwidth_14|OFF,bandwidth_15|OFF,bandwidth_16|OFF,bandwidth_17|OFF,bandwidth_18|OFF,bandwidth_19|OFF,bandwidth_20|OFF

Query

SPUR:BAND:VID?

Response

bandwidth_1|OFF,bandwidth_2|OFF,bandwidth_3|OFF,bandwidth_4|OFF,bandwidth_5|OFF,bandwidth_6|OFF,bandwidth_7|OFF,bandwidth_8|OFF,bandwidth_9|OFF,bandwidth_10|OFF,bandwidth_11|OFF,bandwidth_12|OFF,bandwidth_13|OFF,bandwidth_14|OFF,bandwidth_15|OFF,bandwidth_16|OFF,bandwidth_17|OFF,bandwidth_18|OFF,bandwidth_19|OFF,bandwidth_20|OFF

Value is returned in Hz units, without suffix code. When set to Off, Off is returned.

Parameter

bandwidth_n
Video bandwidth of Segment n (VBW)
Range/Resolution 1 Hz to 10 MHz (1-3 sequence), 5 kHz
Suffix code HZ,KHZ,KZ,MHz,MZ,GHz,GZ
Hz is used when omitted.
OFF VBW is set to Off.

Details

The setting range of this function is limited depending on the setting of RBW. For details, refer to MS2690A/MS2691A/MS2692A Signal Analyzer Operation Manual (Spectrum Analyzer Function Operation) or MS2830A/MS2840A/MS2850A Signal Analyzer Operation Manual (Spectrum Analyzer Function Operation).
Example of Use

To set the video bandwidth of each segment.

SPUR:BAND:VID
3KHZ, 3KHZ, 1MHZ, 1MHZ, 1MHZ, 1MHZ, 1MHZ, 1MHZ, 1MHZ, 1MHZ, 1MHZ, 1MHZ, 1MHZ, 1MHZ, 1MHZ, 1MHZ, 1MHZ, 1MHZ, 1MHZ, 1MHZ, 1MHZ

SPUR:BAND:VID?
>
3000, 3000, 1000000, 1000000, 1000000, 1000000, 1000000, 1000000, 1000000, 1000000, 1000000, 1000000, 1000000, 1000000, 1000000, 1000000, 1000000, 1000000, 1000000
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SPUR:BAND:VID:AUTO/SPUR:BAND:VID:AUTO?
Spurious Emission Video Bandwidth Auto/Manual

Function

This command sets the video bandwidth (VBW) of each segment to Auto/Manual.

Command

SPUR:BAND:VID:AUTO
switch_1_com,switch_2_com,switch_3_com,switch_4_com,switch_5_com,switch_6_com,switch_7_com,switch_8_com,switch_9_com,switch_10_com,switch_11_com,switch_12_com,switch_13_com,switch_14_com,switch_15_com,switch_16_com,switch_17_com,switch_18_com,switch_19_com,switch_20_com

Query

SPUR:BAND:VID:AUTO?

Response


Parameter

<table>
<thead>
<tr>
<th>switch_n_com</th>
<th>Auto mode On/Off</th>
</tr>
</thead>
<tbody>
<tr>
<td>ON</td>
<td>1</td>
</tr>
<tr>
<td>OFF</td>
<td>0</td>
</tr>
</tbody>
</table>

<table>
<thead>
<tr>
<th>switch_n_res</th>
<th>Auto mode On/Off</th>
</tr>
</thead>
<tbody>
<tr>
<td>1</td>
<td>Auto mode is set to On.</td>
</tr>
<tr>
<td>0</td>
<td>Auto mode is set to Off.</td>
</tr>
</tbody>
</table>

Example of Use

To set the resolution bandwidth of the offset to Auto.

SPUR:BAND:VID:AUTO
ON,ON,ON,ON,ON,OFF,OFF,ON,ON,ON,ON,OFF,OFF,ON,ON,ON,ON,ON,OFF,OFF,ON,ON
SPUR:BAND:VID:AUTO?
> 1,1,1,1,1,1,0,0,1,1,1,1,1,0,0,1,1,1,1
SPUR:DET/SPUR:DET?
Spurious Emission Detection Mode

Function

This command selects the detection mode of the waveform pattern in each segment.

Command

```
SPUR:DET
mode_1,mode_2,mode_3,mode_4,mode_5,mode_6,mode_7,mode_8,
mode_9,mode_10,mode_11,mode_12,mode_13,mode_14,mode_15,m
ode_16,mode_17,mode_18,mode_19,mode_20
```

Query

```
SPUR:DET?
```

Response

```
mode_1,mode_2,mode_3,mode_4,mode_5,mode_6,mode_7,mode_8,
mode_9,mode_10,mode_11,mode_12,mode_13,mode_14,mode_15,m
ode_16,mode_17,mode_18,mode_19,mode_20
```

Parameter

- **mode_n**: Detection mode of Segment n
  - **NORM**: Simultaneous detection of Positive and Negative peaks
  - **POS**: Positive peak detection
  - **NEG**: Negative peak detection
  - **SAMP**: Sample detection
  - **RMS**: RMS detection

Example of Use

To query the detection mode of the waveform pattern in each segment.

```
SPUR:DET
POS,POS,POS,NEG,NEG,NORM,NORM,RMS,SAMP,POS,POS,POS,P
OS,POS,POS,POS,POS,POS,POS
```

```
SPUR:DET?
```

```
POS,POS,POS,NEG,NEG,NORM,NORM,RMS,SAMP,POS,POS,POS,P
OS,POS,POS,POS,POS,POS,POS
```
SPUR:FREQ:STAR/SPUR:FREQ:STAR?
Spurious Emission Start Frequency

Function

This command sets the start frequency of each segment.

Command

```
SPUR:FREQ:STAR
freq_1,freq_2,freq_3,freq_4,freq_5,freq_6,freq_7,freq_8,
freq_9,freq_10,freq_11,freq_12,freq_13,freq_14,freq_15,freq_16,freq_17,freq_18,freq_19,freq_20
```

Query

```
SPUR:FREQ:STAR?
```

Response

```
freq_1,freq_2,freq_3,freq_4,freq_5,freq_6,freq_7,freq_8,
freq_9,freq_10,freq_11,freq_12,freq_13,freq_14,freq_15,freq_16,freq_17,freq_18,freq_19,freq_20
```

No suffix code. Value is returned in Hz units.

Parameter

```
freq_n
```

Start frequency of segment n

[MS269xA]

-100 MHz to 6.0499997 GHz (MS2690A)
-100 MHz to 13.5999997 GHz (MS2691A)
-100 MHz to 26.5999997 GHz (MS2692A)

[MS2830A]

-100 MHz to 3.6999997 GHz (MS2830A-040)
-100 MHz to 6.0999997 GHz (MS2830A-041)
-100 MHz to 13.5999997 GHz (MS2830A-043)
-100 MHz to 26.5999997 GHz (MS2830A-044)
-100 MHz to 43.0999997 GHz (MS2830A-045)

[MS2840A]

-100 MHz to 3.6999997 GHz (MS2840A-040)
-100 MHz to 6.0999997 GHz (MS2840A-041)
-100 MHz to 26.9999997 GHz (MS2840A-044)
-100 MHz to 44.9999997 GHz (MS2840A-046)

[MS2850A]

-100 MHz to 32.4999997 GHz (MS2850A-047)
-100 MHz to 44.9999997 GHz (MS2850A-046)

Resolution

1 Hz

Suffix Code

HZ,KHZ,KZ,MHZ,MZ,GHZ,GZ

Hz is used when omitted.

Example of Use

To set the start frequency of each segment.
```
SPUR:FREQ:STAR
9KHZ,100kHz,40MHz,1.1GHz,1GHz,1GHz,1GHz,1GHz,1GHz,1GHz,1GHz,1GHz,1GHz,1GHz,1GHz,1GHz,1GHz
```

```
SPUR:FREQ:STAR?
```
Chapter 4  Native Device Message Details

SPUR:FREQ:STOP/SPUR:FREQ:STOP?
Spurious Emission Stop Frequency

Function
This command sets the stop frequency of each segment.

Command
SPUR:FREQ:STOP
freq_1,freq_2,freq_3,freq_4,freq_5,freq_6,freq_7,freq_8,
freq_9,freq_10,freq_11,freq_12,freq_13,freq_14,freq_15,freq_16,freq_17,freq_18,freq_19,freq_20

Query
SPUR:FREQ:STOP?

Response
freq_1,freq_2,freq_3,freq_4,freq_5,freq_6,freq_7,freq_8,
freq_9,freq_10,freq_11,freq_12,freq_13,freq_14,freq_15,freq_16,freq_17,freq_18,freq_19,freq_20

Value is returned in Hz units, without a suffix code.

Parameter
freq_n  Stop frequency of Segment n

Range
[MS269xA]  
−99.9997 MHz to 6.05 GHz (MS2690A)
−99.9997 MHz to 13.6 GHz (MS2691A)
−99.9997 MHz to 26.6 GHz (MS2692A)

[MS2830A]  
−99.9997 MHz to 3.7 GHz (MS2830A-040)
−9.9997 MHz to 6.1 GHz (MS2830A-041)
−99.9997 MHz to 13.6 GHz (MS2830A-043)
−99.9997 MHz to 26.6 GHz (MS2830A-044)
−99.9997 MHz to 43.1 GHz (MS2830A-045)

[MS2840A]  
−99.9997 MHz to 3.7 GHz (MS2840A-040)
−9.9997 MHz to 6.1 GHz (MS2840A-041)
−99.9997 MHz to 27 GHz (MS2840A-044)
−99.9997 MHz to 45 GHz (MS2840A-046)

[MS2850A]  
−99.9997 MHz to 32.5 GHz (MS2850A-047)
−99.9997 MHz to 45 GHz (MS2850A-046)

Resolution  1 Hz
Suffix code  HZ,KHZ,KZ, MHZ,MZ, GHZ,GZ
Hz is used when omitted.
Example of Use

To set the stop frequency of each segment.

```
SPUR:FREQ:STOP
150kHz,40MHz,1.1GHz,12.5GHz,12.5GHz,12.5GHz,12.5GHz,12.5GHz,12.5GHz,12.5GHz,12.5GHz,12.5GHz,12.5GHz,12.5GHz,12.5GHz,12.5GHz,12.5GHz,12.5GHz,12.5GHz,12.5GHz,12.5GHz,12.5GHz,12.5GHz,12.5GHz,12.5GHz,12.5GHz,12.5GHz
SPUR:FREQ:STOP?
> 150000,40000000,1100000000,12500000000,12500000000,12500000000,12500000000,12500000000,12500000000,12500000000,12500000000,12500000000,12500000000,12500000000,12500000000,12500000000,12500000000,12500000000,12500000000,12500000000,12500000000,12500000000,12500000000
```

**SPUR:FST/SPUR:FST?**

Fail Stop

Function

This command sets whether to stop the measurement when a “Fail” segment has been found.

Command

```
SPUR:FST switch_com
```

Query

```
SPUR:FST?
```

Response

```
switch_res
```

Parameter

<table>
<thead>
<tr>
<th>switch_com</th>
<th>Fail Stop On/Off</th>
</tr>
</thead>
<tbody>
<tr>
<td>ON</td>
<td>1</td>
</tr>
<tr>
<td>OFF</td>
<td>0</td>
</tr>
</tbody>
</table>

<table>
<thead>
<tr>
<th>switch_res</th>
<th>Fail Stop On/Off</th>
</tr>
</thead>
<tbody>
<tr>
<td>1</td>
<td>Fail Stop is set to On.</td>
</tr>
<tr>
<td>0</td>
<td>Fail Stop is set to Off.</td>
</tr>
</tbody>
</table>
Example of Use

To stop the measurement when a “Fail” segment has been found.

```
SPUR:FST ON
SPUR:FST?
> 1
```

**SPUR:PEAK:RES/SPUR:PEAK:RES?**

Spurious Emission Search Resolution

Function

This command sets the spurious search resolution when Result Type is set to Peaks.

Command

```
SPUR:PEAK:RES
rel_ampl_1,rel_ampl_2,rel_ampl_3,rel_ampl_4,rel_ampl_5,rel_ampl_6,rel_ampl_7,rel_ampl_8,rel_ampl_9,rel_ampl_10,rel_ampl_11,rel_ampl_12,rel_ampl_13,rel_ampl_14,rel_ampl_15,rel_ampl_16,rel_ampl_17,rel_ampl_18,rel_ampl_19,rel_ampl_20
```

Query

```
SPUR:PEAK:RES?
```

Response

```
rel_ampl_1,rel_ampl_2,rel_ampl_3,rel_ampl_4,rel_ampl_5,rel_ampl_6,rel_ampl_7,rel_ampl_8,rel_ampl_9,rel_ampl_10,rel_ampl_11,rel_ampl_12,rel_ampl_13,rel_ampl_14,rel_ampl_15,rel_ampl_16,rel_ampl_17,rel_ampl_18,rel_ampl_19,rel_ampl_20
```

Value is returned in dB units, without suffix code.

Parameter

<table>
<thead>
<tr>
<th>Parameter</th>
<th>Description</th>
<th>Range</th>
<th>Resolution</th>
<th>Suffix code</th>
</tr>
</thead>
<tbody>
<tr>
<td>rel_ampl_n</td>
<td>Spurious search resolution of Segment n</td>
<td>0.001 to 50.00 dB</td>
<td>0.001 dB</td>
<td>DB</td>
</tr>
</tbody>
</table>

Example of Use

To set the spurious search resolution.

```
SPUR:PEAK:RES 6,6,6,6,6,6,10,10,10,6,6,6,6,6,6,6,6,6,6,6
SPUR:PEAK:RES?
> 6.000,6.000,6.000,6.000,6.000,6.000,6.000,10.000,10.000,10.000,6.000,6.000,6.000,6.000,6.000,6.000,6.000,6.000,6.000
```
SPUR:PEAK:THR/SPUR:PEAK:THR?
Spurious Emission Search Threshold Level

Function

This command sets the spurious search threshold when Result Type is Peak.

Command

SPUR:PEAK:THR
real_1,real_2,real_3,real_4,real_5,real_6,real_7,real_8,
real_9,real_10,real_11,real_12,real_13,real_14,real_15,
real_16,real_17,real_18,real_19,real_20

Query

SPUR:PEAK:THR?

Response

real_1,real_2,real_3,real_4,real_5,real_6,real_7,real_8,
real_9,real_10,real_11,real_12,real_13,real_14,real_15,
real_16,real_17,real_18,real_19,real_20

Value is returned in dBm units, without suffix code.

Parameter

real_n Spurious search threshold value of Segment n

Range –200 dBm to 50 dBm
Resolution 0.01 dB
Suffix code DBM,DM

Example of Use

To set the spurious search threshold.

SPUR:PEAK:THR
-70,-70,-90,-90,-90,-90,-90,-90,-90,-90,-90,-90,-90,
-90,-90,-90,-90

SPUR:PEAK:THR?
>
-70.00,-70.00,-90.00,-90.00,-90.00,-90.00,-90.00,-90.00,
-90.00,-90.00,-90.00,-90.00,-90.00,-90.00,-90.00,
-90.00,-90.00,-90.00,-90.00
Chapter 4  Native Device Message Details

SPUR:POW:GAIN/SPUR:POW:GAIN?
Spurious Emission Preamp On/Off

Function

This command sets the pre-amp of each segment to On/Off.

Command

SPUR:POW:GAIN
switch_1_com,switch_2_com,switch_3_com,switch_4_com,switch_5_com,switch_6_com,switch_7_com,switch_8_com,switch_9_com,switch_10_com,switch_11_com,switch_12_com,switch_13_com,switch_14_com,switch_15_com,switch_16_com,switch_17_com,switch_18_com,switch_19_com,switch_20_com

Query

SPUR:POW:GAIN?

Response


Parameter

switch_n_res  Pre-amp On/Off
  ON|1  Pre-amp is set to On.
  OFF|0  Pre-amp is set to Off.
  Default  Off

Details

[MS269xA]
This command is turned off and thus invalid when Option 008/108 6 GHz Preamplifier is NOT installed.

[MS2830A]
This command is turned off and thus invalid when Option 008/108/068/168 Preamplifier is NOT installed.

[MS2840A]
This command is turned off and thus invalid when Option 008/108/068/168/069/169 Preamplifier is NOT installed.
[MS2850A]
This command is turned off and thus invalid when Option 068/168
Preamplifier is NOT installed.

Example of Use

To set the pre-amp of each segment.

SPUR:POW:GAIN
ON, ON, ON, OFF, OFF, ON, ON, ON, OFF, OFF, ON, ON, ON, OFF, OFF
, ON, ON, ON
SPUR:POW:GAIN?
> 1, 1, 1, 0, 0, 1, 1, 1, 0, 1, 1, 1, 0, 0, 1, 1, 1, 1

SPUR:SEGM:NUMB/SPUR:SEGM:NUMB?
Edit Segment Number

Function

This command sets the segment to set a parameter in.

Command

SPUR:SEGM:NUMB integer

Query

SPUR:SEGM:NUMB?

Response

integer

Parameter

integer

Segment number

Range 1 to 20
Resolution 1

Example of Use

To set 3 to the segment to set a parameter in.

SPUR:SEGM:NUMB 3
SPUR:SEGM:NUMB?
> 3
**Chapter 4  Native Device Message Details**

**SPUR:SEGM:STAT/SPUR:SEGM:STAT?**
Segment On/Off

**Function**

This command sets the segment to On/Off.

**Command**

```
SPUR:SEGM:STAT
switch_1_com,switch_2_com,switch_3_com,switch_4_com,switch_5_com,switch_6_com,switch_7_com,switch_8_com,switch_9_com,switch_10_com,switch_11_com,switch_12_com,switch_13_com,switch_14_com,switch_15_com,switch_16_com,switch_17_com,switch_18_com,switch_19_com,switch_20_com
```

**Query**

```
SPUR:SEGM:STAT?
```

**Response**

```
```

**Parameter**

<table>
<thead>
<tr>
<th>switch_n_com</th>
<th>Segment n On/Off</th>
</tr>
</thead>
<tbody>
<tr>
<td>ON</td>
<td>1</td>
</tr>
<tr>
<td>OFF</td>
<td>0</td>
</tr>
</tbody>
</table>

<table>
<thead>
<tr>
<th>switch_n_res</th>
<th>Segment n On/Off</th>
</tr>
</thead>
<tbody>
<tr>
<td>1</td>
<td>Segment is set to On.</td>
</tr>
<tr>
<td>0</td>
<td>Segment is set to Off.</td>
</tr>
</tbody>
</table>

**Details**

You cannot set all the segments to Off at the same time.

**Example of Use**

To set the segment to On/Off.

```
SPUR:SEGM:STAT
ON,ON,OFF,ON,ON,OFF,ON,ON,OFF,ON,ON,OFF,ON,ON,OFF,ON,ON,OFF,ON,ON
SPUR:STAT?
> 1,1,0,1,1,0,1,1,0,1,0,1,1,0,1,1,0,1,1,0,1,1
```
SPUR:SWE:PAUS/SPUR:SWE:PAUS?
Pause before Sweep

Function
This command configures the setting to pause before sweep of each segment.

Command
SPUR:SWE:PAUS
switch_1_com, switch_2_com, switch_3_com, switch_4_com, switch_5_com, switch_6_com, switch_7_com, switch_8_com, switch_9_com, switch_10_com, switch_11_com, switch_12_com, switch_13_com, switch_14_com, switch_15_com, switch_16_com, switch_17_com, switch_18_com, switch_19_com, switch_20_com

Query
SPUR:SWE:PAUS?

Response

Parameter

<table>
<thead>
<tr>
<th>switch_n_com</th>
<th>Pause before sweep On/Off</th>
</tr>
</thead>
<tbody>
<tr>
<td>ON</td>
<td>1</td>
</tr>
<tr>
<td>OFF</td>
<td>0</td>
</tr>
<tr>
<td>switch_n_res</td>
<td>Pause before sweep On/Off</td>
</tr>
<tr>
<td>1</td>
<td>Pause before sweep.</td>
</tr>
<tr>
<td>0</td>
<td>Pause before sweep.</td>
</tr>
</tbody>
</table>

Details
- When it is set to On, the dialog box is displayed before measuring the segment, and the measurement will pause.
- The measurement does not pause during remote operation. Also, when it has switched to remote operation during pause, the measurement will restart.
**Chapter 4  Native Device Message Details**

**Example of Use**

To configure the setting to pause before sweep of each segment.

```
SPUR:SWE:PAUS
ON, ON, OFF, OFF, ON, ON, OFF, OFF, ON, ON, ON, ON, OFF, OFF,
ON, ON, ON
SPUR:SWE:PAUS?
> 1,1,1,0,0,1,1,1,1,0,1,1,1,0,1,1,1,1
```

**SPUR:SWE:POIN/SPUR:SWE:POIN?**

Spurious Emission Trace Point

**Function**

This command sets the number of the points in the trace data of each segment.

**Command**

```
SPUR:SWE:POIN
integer_1,integer_2,integer_3,integer_4,integer_5,integer_6,
integer_7,integer_8,integer_9,integer_10,integer_11,integer_12,
integer_13,integer_14,integer_15,integer_16,integer_17,integer_18,
integer_19,integer_20
```

**Query**

```
SPUR:SWE:POIN?
```

**Response**

```
integer_1,integer_2,integer_3,integer_4,integer_5,integer_6,
integer_7,integer_8,integer_9,integer_10,integer_11,integer_12,
integer_13,integer_14,integer_15,integer_16,integer_17,integer_18,
integer_19,integer_20
```

**Parameter**

<table>
<thead>
<tr>
<th>integer_n</th>
<th>Number of points in trace data of Segment n</th>
</tr>
</thead>
<tbody>
<tr>
<td>11</td>
<td>11 points</td>
</tr>
<tr>
<td>21</td>
<td>21 points</td>
</tr>
<tr>
<td>41</td>
<td>41 points</td>
</tr>
<tr>
<td>51</td>
<td>51 points</td>
</tr>
<tr>
<td>101</td>
<td>101 points</td>
</tr>
<tr>
<td>201</td>
<td>201 points</td>
</tr>
<tr>
<td>251</td>
<td>251 points</td>
</tr>
<tr>
<td>401</td>
<td>401 points</td>
</tr>
<tr>
<td>501</td>
<td>501 points</td>
</tr>
</tbody>
</table>
### Example of Use

To set the number of the points in the trace data of each segment.

```
SPUR:SWE:POIN
1001,5001,5001,5001,10001,10001,10001,10001,10001,10001,
10001,10001,10001,10001,10001,10001,10001,10001,10001
SPUR:SWE:POIN?
>
1001,5001,5001,5001,10001,10001,10001,10001,10001,10001,
10001,10001,10001,10001,10001,10001,10001,10001,10001
```
**SPUR:SWE:TIME/SPUR:SWE:TIME?**

Spurious Emission Sweep Time

**Function**

This command sets the sweep time of each segment.

**Command**

```plaintext
SPUR:SWE:TIME
seconds_1,seconds_2,seconds_3,seconds_4,seconds_5,seconds_6,seconds_7,seconds_8,seconds_9,seconds_10,seconds_11,seconds_12,seconds_13,seconds_14,seconds_15,seconds_16,seconds_17,seconds_18,seconds_19,seconds_20
```

**Query**

```plaintext
SPUR:SWE:TIME?
```

**Response**

```plaintext
seconds_1,seconds_2,seconds_3,seconds_4,seconds_5,seconds_6,seconds_7,seconds_8,seconds_9,seconds_10,seconds_11,seconds_12,seconds_13,seconds_14,seconds_15,seconds_16,seconds_17,seconds_18,seconds_19,seconds_20
```

Value is returned in s units, without suffix code.

**Parameter**

<table>
<thead>
<tr>
<th>seconds_n</th>
<th>Sweep Time of Segment n</th>
</tr>
</thead>
</table>

**Range**

- **[MS269xA]** 2 ms to 1000 s
- **[MS2830A]** 1 ms to 1000 s
- **[MS2840A]** 1 ms to 1000 s
- **[MS2850A]** 1 ms to 1000 s

**Resolution**

- 1 ms (time ≤ 1 s)
- 0.1 s (1 s < time < 10 s)
- 1 s (10 s ≤ time)

**Suffix code**

- NS, US, MS, S

- S is used when omitted.

**Default**

Auto value

**Example of Use**

To set Sweep Time of each segment.

```plaintext
SWE:TIME
0.1,0.1,0.1,0.1,0.1,0.1,0.1,0.1,0.1,0.1,0.1,0.1,0.1,0.1,0.1,0.1,0.1,0.1,0.1
SPUR:SWE:TIME?
>
0.100000,0.100000,0.100000,0.100000,0.100000,0.100000,0.100000,0.100000,0.100000,0.100000,0.100000,0.100000,0.100000,0.100000,0.100000,0.100000,0.100000,0.100000,0.100000
```

4-304
Spurious Emission Sweep Time Auto/Manual

Function
This command sets the sweep time of each segment to Auto/Manual.

Command

```plaintext
SPUR:SWE:TIME:AUTO
switch_1_com,switch_2_com,switch_3_com,switch_4_com,switch_5_com,switch_6_com,switch_7_com,switch_8_com,switch_9_com,switch_10_com,switch_11_com,switch_12_com,switch_13_com,switch_14_com,switch_15_com,switch_16_com,switch_17_com,switch_18_com,switch_19_com,switch_20_com
```

Query

```plaintext
SPUR:SWE:TIME:AUTO?
```

Response

```plaintext
```

Parameter

```plaintext
switch_n_com
ON|1  Sweep time of Segment n Auto/Manual
OFF|0 Sweep Time is set to Manual.

switch_n_res
1  Sweep time of Segment n Auto/Manual
0  Sweep Time is set to Manual.
```

Example of Use

To set the sweep time of each segment to Auto/Manual.

```plaintext
SPUR:SWE:TIME:AUTO
ON,ON,OFF,ON,ON,OFF,ON,ON,OFF,ON,ON,OFF,ON,ON,OFF,ON,ON
SPUR:SWE:TIME:AUTO?
> 1,1,0,1,1,0,1,1,0,1,1,0,1,1,0,1,1,0,1,1
```
**SPUR:SYNT:LPH/SPUR:SYNT:LPH?**

Low Phase Noise for Spurious Emission Measurement

**Function**

This command enables/disables Low Phase Noise function during Spurious Emission measurement.

**Command**

SPUR:SYNT:LPH switch

**Query**

SPUR:SYNT:LPH?

**Response**

switch

**Parameter**

switch

- ON|1: Enables Low Phase Noise switch.
- OFF|0: Disables Low Phase Noise switch.
- Default: Off

**Detail**

This function is available when MS2830A-062/066 or MS2840A-066/166 is installed.

This function does not depend on the setting of the Low Phase Noise switch at System Config. The setting-enabled conditions are as follows:

<table>
<thead>
<tr>
<th>Function status</th>
<th>System Config Low Phase Noise switch status</th>
<th>Low Phase Noise switch status</th>
</tr>
</thead>
<tbody>
<tr>
<td>On</td>
<td>On</td>
<td>Enables the Low Phase Noise function during Spurious Emission measurement.</td>
</tr>
<tr>
<td></td>
<td>Off</td>
<td></td>
</tr>
<tr>
<td>Off</td>
<td>On</td>
<td>Disables the Low Phase Noise function during Spurious Emission measurement.</td>
</tr>
<tr>
<td></td>
<td>Off</td>
<td></td>
</tr>
</tbody>
</table>

The status at other than spurious emission measurement is reflected by the System Config switch.

The phase noise characteristics can be improved using the Low Phase Noise Function when the Low Phase Noise switch is On, the frequency range is $-20 \text{ MHz} \leq f \leq 3.7 \text{ GHz}$ ($-20 \text{ MHz} \leq f < 3.5 \text{ GHz}$ when Frequency Band Mode is Spurious) and the Span Frequency is less than 1 MHz. However, if a signal outside the DUT frequency range is input while using the Low Phase Noise Function, it may be possible to measure spurious noise generated within the unit.

Refer to the *MS2830A/MS2840A/MS2850A Signal Analyzer Operation Manual (Spectrum Analyzer Function Operation)* for details about
spurious noise generation and appropriate conditions for using the Low Phase Noise Function.

Example of Use

To enable the Low Phase Noise function during Spurious Emission measurement.

SPUR:SYNT:LPH ON
SPUR:SYNT:LPH?
> 1
Chapter 4  Native Device Message Details

SPUR:TDOM:BAND/SPUR:TDOM:BAND?
Spurious Emission Time Domain RBW

Function

This command sets RBW when performing Time Domain Measurement.

Command

```
SPUR:TDOM:BAND
bandwidth_1,bandwidth_2,bandwidth_3,bandwidth_4,bandwidth_5,bandwidth_6,bandwidth_7,bandwidth_8,bandwidth_9,bandwidth_10,bandwidth_11,bandwidth_12,bandwidth_13,bandwidth_14,bandwidth_15,bandwidth_16,bandwidth_17,bandwidth_18,bandwidth_19,bandwidth_20
```

Query

```
SPUR:TDOM:BAND?
```

Response

```
bandwidth_1,bandwidth_2,bandwidth_3,bandwidth_4,bandwidth_5,bandwidth_6,bandwidth_7,bandwidth_8,bandwidth_9,bandwidth_10,bandwidth_11,bandwidth_12,bandwidth_13,bandwidth_14,bandwidth_15,bandwidth_16,bandwidth_17,bandwidth_18,bandwidth_19,bandwidth_20
```

Value is returned in Hz units, without suffix code.

Parameter

```
bandwidth_n
```

Resolution bandwidth (RBW) of Segment n

**[MS269xA]**

Range/Resolution 30 Hz to 31.25 MHz

However, the settable value is 30 Hz to 3 MHz (1-3 sequence), 50 kHz, 5 MHz, 10 MHz, 20 MHz or 31.25 MHz.

**[MS2830A], [MS2840A]**

Range/Resolution 30 Hz to 31.25 MHz

However, the settable value is 30 Hz to 3 MHz (1-3 sequence), 500 Hz, 50 kHz, 2 MHz, 5 MHz, 10 MHz, 20 MHz or 31.25 MHz.

**[MS2850A]**

Range/Resolution 30 Hz to 31.25 MHz

However, the settable value is 30 Hz to 3 MHz (1-3 sequence), 500 Hz, 50 kHz, 2 MHz, 5 MHz, or 10 MHz.

**[Common]**

Suffix Code HZ,KHZ,KZ,MHZ,MZ,GHZ,GZ

Hz is used when omitted.

Details

For the MS2830A, MS2840A, RBW of 20 MHz and higher can be used
only when MS2830A-005/105/007/009/109, MS2840A-005/105/009/109 is installed.
For RBW 31.25 MHz, it is not a Gauss filter but a flat-top characteristic filter.

Example of Use

To set RBW when performing Time Domain Measurement.

```
SPUR:TDOM:BAND
3KHZ,3KHZ,10KHZ,10KHZ,10KHZ,10KHZ,10KHZ,10KHZ,10KHZ,10KHZ
SPUR:TDOM:BAND?
> 3000,3000,10000,10000,10000,10000,10000,10000,10000,1000
0,10000,10000,10000,10000,10000,10000,10000,10000,10000
```
Spurious Emission Couple Segment RBW

Function
This command enables/disables the function that the value set in Segment Setup is automatically set to RBW when performing Time Domain Measurement.

Command
SPUR:TDOM:BAND:COUP
switch_1_com,switch_2_com,switch_3_com,switch_4_com,switch_5_com,switch_6_com,switch_7_com,switch_8_com,switch_9_com,switch_10_com,switch_11_com,switch_12_com,switch_13_com,switch_14_com,switch_15_com,switch_16_com,switch_17_com,switch_18_com,switch_19_com,switch_20_com

Query
SPUR:TDOM:BAND:COUP?

Response

Parameter
switch_n_com Shared setting On/Off
ON|1 On
OFF|0 Off

switch_n_res Shared setting On/Off
1 On
0 Off

Example of Use
To enable/disable the function that the value set in Segment Setup is automatically set to RBW when performing Time Domain Measurement.
SPUR:TDOM:BAND:COUP
ON,ON,ON,ON,OFF,OFF,ON,ON,ON,ON,ON,ON,ON,ON,OFF,OFF,ON,ON
SPUR:TDOM:BAND:COUP?
> 1,1,1,1,0,0,1,1,1,1,1,1,1,1,0,0,1,1,1,1
SPUR:TDOM:BAND:VID/SPUR:TDOM:BAND:VID?
Spurious Emission Time Domain VBW

Function
This command sets VBW when performing Time Domain Measurement.

Command
SPUR:TDOM:BAND:VID
bandwidth_1|OFF,bandwidth_2|OFF,bandwidth_3|OFF,bandwidth_4|OFF,bandwidth_5|OFF,bandwidth_6|OFF,bandwidth_7|OFF,bandwidth_8|OFF,bandwidth_9|OFF,bandwidth_10|OFF,bandwidth_11|OFF,bandwidth_12|OFF,bandwidth_13|OFF,bandwidth_14|OFF,bandwidth_15|OFF,bandwidth_16|OFF,bandwidth_17|OFF,bandwidth_18|OFF,bandwidth_19|OFF,bandwidth_20|OFF

Query
SPUR:TDOM:BAND:VID?

Response
bandwidth_1|OFF,bandwidth_2|OFF,bandwidth_3|OFF,bandwidth_4|OFF,bandwidth_5|OFF,bandwidth_6|OFF,bandwidth_7|OFF,bandwidth_8|OFF,bandwidth_9|OFF,bandwidth_10|OFF,bandwidth_11|OFF,bandwidth_12|OFF,bandwidth_13|OFF,bandwidth_14|OFF,bandwidth_15|OFF,bandwidth_16|OFF,bandwidth_17|OFF,bandwidth_18|OFF,bandwidth_19|OFF,bandwidth_20|OFF

Value is returned in Hz units, without suffix code. When set to Off, Off is returned.

Parameter
bandwidth_n
Video bandwidth of Segment n (VBW)

Range/Resolution
1 Hz to 10 MHz (1-3 sequence), 5 kHz

Suffix code
HZ,KHZ,KZ,MHZ,MZ,GHZ,GZ

Hz is used when omitted.

OFF
VBW is set to Off.

Details
The setting range of this function is limited depending on the setting of RBW. For details, refer to MS2690A/MS2691A/MS2692A Signal Analyzer Operation Manual (Spectrum Analyzer Function Operation) or MS2830A/MS2840A/MS2850A Signal Analyzer Operation Manual (Spectrum Analyzer Function Operation).
Example of Use

To set VBW when performing Time Domain Measurement.

```
SPUR:TDOM:BAND:VID
3KHZ, 3KHZ, 1MHZ, 1MHZ, 1MHZ, 1MHZ, 1MHZ, 1MHZ, 1MHZ, 1MHZ, 1MHZ, 1MHZ, 1MHZ, 1MHZ, 1MHZ, 1MHZ, 1MHZ, 1MHZ, 1MHZ, 1MHZ, 1MHZ
SPUR:TDOM:BAND:VID?
> 3000, 3000, 1000000, 1000000, 1000000, 1000000, 1000000, 1000000, 1000000, 1000000, 1000000, 1000000, 1000000, 1000000, 1000000, 1000000, 1000000, 1000000, 1000000
```
Spurious Emission Couple Segment VBW

Function
This command enables/disables the function that the value set in Segment Setup is automatically set to VBW when performing Time Domain Measurement.

Command
SPUR:TDOM:BAND:VID:COUP
switch_1_com,switch_2_com,switch_3_com,switch_4_com,switch_5_com,switch_6_com,switch_7_com,switch_8_com,switch_9_com,switch_10_com,switch_11_com,switch_12_com,switch_13_com,switch_14_com,switch_15_com,switch_16_com,switch_17_com,switch_18_com,switch_19_com,switch_20_com

Query
SPUR:TDOM:BAND:VID:COUP?

Response

Parameter
switch_n_com
ON|1
OFF|0
Shared setting On/Off
On
Off
switch_n_res
1
0
Shared setting On/Off
On
Off

Example of Use
To enable/disable the function that the value set in Segment Setup is automatically set to VBW when performing Time Domain measurement.
SPUR:TDOM:BAND:VID:COUP
ON, ON, ON, ON, OFF, OFF, ON, ON, ON, ON, ON, ON, OFF, OFF, ON, ON, ON
SPUR:TDOM:BAND:VID:COUP?
> 1,1,1,1,0,0,1,1,1,1,1,1,1,1,0,0,1,1,1,1
SPUR:TDOM:DET

Spurious Emission Time Domain Detection

Function

This command selects the detection mode of the waveform pattern when performing Time Domain measurement.

Command

```
SPUR:TDOM:DET
```

```
mode_1,mode_2,mode_3,mode_4,mode_5,mode_6,mode_7,mode_8,
mode_9,mode_10,mode_11,mode_12,mode_13,mode_14,mode_15,m
ode_16,mode_17,mode_18,mode_19,mode_20
```

Query

```
SPUR:TDOM:DET?
```

Response

```
mode_1,mode_2,mode_3,mode_4,mode_5,mode_6,mode_7,mode_8,
mode_9,mode_10,mode_11,mode_12,mode_13,mode_14,mode_15,m
ode_16,mode_17,mode_18,mode_19,mode_20
```

Parameter

<table>
<thead>
<tr>
<th>Parameter</th>
<th>Description</th>
</tr>
</thead>
<tbody>
<tr>
<td>mode_n</td>
<td>Detection mode of Segment n</td>
</tr>
<tr>
<td>POS</td>
<td>Positive peak detection</td>
</tr>
<tr>
<td>SAMP</td>
<td>Sample detection</td>
</tr>
<tr>
<td>RMS</td>
<td>RMS detection</td>
</tr>
</tbody>
</table>

Example of Use

To select the detection mode of the waveform pattern when performing Time Domain Measurement.

```
SPUR:TDOM:DET
POS,POS,POS,RMS,POS,POS,POS,POS,POS,POS,POS,POS,POS,POS,POS,
POS,POS,POS,RMS,POS,POS
SPUR:TDOM:DET?
> POS,POS,POS,RMS,POS,POS,POS,POS,POS,POS,POS,POS,POS,POS,POS,
POS,POS,POS,RMS,POS,POS
```
SPUR:TDOM:SPAN:ZERO/SPUR:TDOM:SPAN:ZERO?
Time Domain Measurement

Function
This command sets whether to measure the spurious power by using Time Domain.

Command
SPUR:TDOM:SPAN:ZERO switch_com

Query
SPUR:TDOM:SPAN:ZERO?

Response
switch_res

Parameter
switch_com
ON|1
OFF|0
Time Domain measurement is set to On.
Time Domain measurement is set to Off.
switch_res
1
0
Time Domain measurement On
Time Domain measurement Off

Example of Use
To measure the spurious power by using Time Domain.
SPIR:TDOM:SPAN:ZERO ON
SPIR:TDOM:SPAN:ZERO?
> 1
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Spurious Emission Time Domain Sweep Time

Function
This command sets the sweep time when performing Time Domain measurement.

Command
SPUR:TDOM:SWE:TIME
seconds_1,seconds_2,seconds_3,seconds_4,seconds_5,seconds_6,seconds_7,seconds_8,seconds_9,seconds_10,seconds_11,seconds_12,seconds_13,seconds_14,seconds_15,seconds_16,seconds_17,seconds_18,seconds_19,seconds_20

Query
SPUR:TDOM:SWE:TIME?

Response
seconds_1,seconds_2,seconds_3,seconds_4,seconds_5,seconds_6,seconds_7,seconds_8,seconds_9,seconds_10,seconds_11,seconds_12,seconds_13,seconds_14,seconds_15,seconds_16,seconds_17,seconds_18,seconds_19,seconds_20
Value is returned in s units, without suffix code.

Parameter
seconds_n  Sweep time of Segment n
Range  1 µs to 1000 s (For Time-axis measurement)
Suffix code  NS,US,MS,S
S is used when omitted.
Default  Auto value

Example of Use
To set the sweep time when performing Time Domain measurement.
SPUR:TDOM:SWE:TIME
0.1,0.1,0.1,0.1,0.1,0.1,0.1,0.1,0.1,0.1,0.1,0.1,0.1,0.1,0.1,0.1,0.1,0.1,0.1
SPUR:TDOM:SWE:TIME?
>
0.100000,0.100000,0.100000,0.100000,0.100000,0.100000,0.100000,0.100000,0.100000,0.100000,0.100000,0.100000,0.100000,0.100000,0.100000,0.100000,0.100000,0.100000,0.100000
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**SPUR:TYPE/SPUR:TYPE?**
Spurious Emission Result Type

**Function**
This command selects the measurement result type.

**Command**

```
SPUR:TYPE type_com
```

**Query**
```
SPUR:TYPE?
```

**Response**
```
type_res
```

**Parameter**

- `type_com`
  - Measurement result type
  - **WORS**
    - Point with the least margin from the limit line is displayed.
  - **EXAM**
    - Same as above
  - **PEAK**
    - Spurious detected by the detection resolution and the threshold set in each segment is displayed.
  - **FULL**
    - Same as above

- `type_res`
  - Measurement result type
  - **WORS**
    - Point with the least margin from the limit line
  - **PEAK**
    - Spurious detected by the detection resolution and the threshold set in each segment is displayed.

**Details**
This command is not available when performing Time Domain measurement.

**Example of Use**

To display the point with the least margin from the limit line.

```
SPUR:TYPE EXAM
SPUR:TYPE?
> WORS
```
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SRCHTH/SRCHTH?
Peak Search Mode

Function
This command specifies the detection mode for the threshold value (Peak Search Threshold Level) in peak point detection.

Command
SRCHTH mode

Query
SRCHTH?

Response
mode

Parameter
mode
OFF  Threshold value detection mode
Detects full range (No range limit).
ON   Sets the detection limit to ON.
ABOVE  Detects only in the range above the threshold value.
BELOW Detects only in the range below the threshold value.

Details
This command is not available during the Spurious Emission measurement and when Displayed Segment Mode is set to Auto. Not available during Spectrum Emission Mask measurement.

Example of Use
To detect the peak point from the data greater than the threshold value:
SRCHTH ABOVE
SRCHTH?
> ABOVE
SRCHTHLVL/SRCHTHLVL?
Peak Search Threshold Level

Function
This command sets the threshold value when detecting a peak point.

Command
SRCHTHLVL level

Query
SRCHTHLVL?

Response
level
Returns a value according to the scale unit settings, without a suffix code.
Units are $\mu$V when set to V, and units are $\mu$W when set to W.

Parameter

<table>
<thead>
<tr>
<th>level</th>
<th>Threshold value when detecting peak point</th>
</tr>
</thead>
<tbody>
<tr>
<td>Range</td>
<td>Full width of Y-axis</td>
</tr>
<tr>
<td>Resolution</td>
<td>0.01 dB (When scale unit settings are dB-system units)</td>
</tr>
<tr>
<td></td>
<td>0.01 pV (When scale unit settings are V-system units)</td>
</tr>
<tr>
<td></td>
<td>0.01 yW (When scale unit settings are W-system units)</td>
</tr>
</tbody>
</table>

Suffix code
- $\text{DBM}$, $\text{DM}$: $\text{dBm}$
- $\text{DBMV}$: $\text{dBmV}$
- $\text{DBUV}$: $\text{dB}$
- $\text{DBUVE}$: $\text{dB}$ (emf)
- $\text{DBUVM}$: $\text{dB}$
- $\text{V}$: $\text{V}$
- $\text{MV}$: $\text{mV}$
- $\text{UV}$: $\text{mV}$
- $\text{W}$: $\text{W}$
- $\text{MW}$: $\text{mW}$
- $\text{UW}$: $\text{mW}$
- $\text{NW}$: $\text{nW}$
- $\text{FW}$: $\text{pW}$
- $\text{FW}$: $\text{fW}$

Scale unit settings apply when omitted. V is used for Linear Scale.
Details

This command is not available during the Spurious Emission measurement and when Displayed Segment Mode is set to Auto. Not available during Spectrum Emission Mask measurement.

Example of Use

To set the threshold value when detecting peak point to –10 dBm.

```
SRCHTHLVL -10
SRCHTHLVL?
> -10.00
```

**ST/ST?**

**Sweep Time**

**Function**

This command sets the sweep time. Each parameter is specified in accordance with the already specified frequency axis or time axis measurement.

**Command**

```
ST time
```

**Query**

```
ST AUTO
```

**Response**

```
time
```

No suffix code. Value is returned in \(\mu s\) units.

**Parameter**

```
time
```

Sweep time

**Range**

- **[MS269xA]**
  - 2 ms to 1000 s
  - 1 \(\mu s\) to 1000 s

- **[MS2830A], [MS2840A], [MS2850A]**
  - 1 ms to 1000 s
  - 1 ms to 999999 s
  - 1 \(\mu s\) to 1000 s

**Suffix code**

- NS, US, MS, S
  - ms is used when omitted.
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AUTO
Sets the optimum value from RBW, WBW and Span.

Details
This command is not available during FFT sweep.
This command is not available during the Spectrum Emission Mask or the Spurious Emission measurement.
This command is disabled when Signal Generator Control is set to On.

Example of Use
To set the sweep time to 20 ms.
ST 20
ST 20000US
ST 20MS
ST 0.02S
ST?
> 20000
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STF/STF?
Start Frequency

This command sets the start frequency.

Command
STF freq

Query
STF?

Response
freq
Returns a value in Hz units, without a suffix code.

Parameter
freq  Start frequency

Range
[MS269xA]  
-100 MHz to 6.0499997 GHz (MS2690A)
-100 MHz to 13.5999997 GHz (MS2691A)
-100 MHz to 26.5999997 GHz (MS2692A)

[MS2830A]  
-100 MHz to 3.6999997 GHz (Option 040)
-100 MHz to 6.0999997 GHz (Option 041)
-100 MHz to 13.5999997 GHz (Option 043)
-100 MHz to 26.5999997 GHz (Option 044)
-100 MHz to 43.0999997 GHz (Option 045)

[MS2840A]  
-100 MHz to 3.6999997 GHz (Option 040)
-100 MHz to 6.0999997 GHz (Option 041)
-100 MHz to 26.9999997 GHz (Option 044)
-100 MHz to 44.9999997 GHz (Option 046)

[MS2850A]  
-100 MHz to 32.4999997 GHz (Option 047)
-100 MHz to 44.9999997 GHz (Option 046)

Resolution  1 Hz
Suffix code  HZ, KHZ, KZ, MHZ, MZ, GHZ, GZ
Hz is used when omitted.

Details
This command is not available during the Spectrum Emission Mask or
the Spurious Emission measurement.
When Signal Generator Control is On, the start frequency range depends
on the frequency range of Signal Generator.

Example of Use
To set the start frequency to 123.456 kHz.
STF 123456
STF 123456HZ
STF 123.456KHZ
STF 0.123456MHZ
STF?
> 123456
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STMODE/STMODE?
Auto Sweep Time Mode

Function
This command sets normal/fast mode when sweep time is AUTO.

Command
STMODE mode

Query
STMODE?

Response
mode

Parameter
mode  Sweep time
NORMAL  Normal sweep time
FAST  Fast sweep mode

Details
This command is not available during the Spectrum Emission Mask measurement.

Example of Use
To set the sweep time to fast mode.
STMODE  FAST
STMODE?
>  FAST
STORAGECOUNT/STORAGECOUNT?

Storage Count

Function

This command sets the storage mode count.

Command

STORAGECOUNT count

Query

STORAGECOUNT?

Response

count

Parameter

count Storage mode count
Range 2 to 9999

Details

This command is not available during the Spurious Emission measurement.

Example of Use

To set the storage mode count to 10 times.
STORAGECOUNT 10
STORAGECOUNT?
> 10
STORAGEMODE/STORAGEMODE?
Storage Mode (Active Trace)

Function
This command selects the storage mode of the active trace.

Command
STORAGEMODE mode

Query
STORAGEMODE?

Response
mode

Parameter
mode  Storage mode
OFF      Off
MAX      Max Hold
AVG      Average
MIN      Min Hold
LINAVG   Linear Average

Details
Trace B, C, D, E, and F cannot be set during the Spurious Emission measurement.

Example of Use
To set the active trace storage mode to Average.

STORAGEMODE AVG
STORAGEMODE?
> AVG
SVCSVWAVE
Save Wave Data

Function
This command saves waveform data into a CSV file.

Command
SVCSVWAVE file,device

Parameter
file
Name of file to be saved
Character string within 32 characters enclosed by double quotes (" ") or single quotes (’ ’).
(excluding extension)
The following characters cannot be used.
\ / : * ? “ ’ ‘ < > |
File name is automatically set to “WaveData
date consequential number.csv” when omitted.

device
Drive name
A,B,D,E,F,...
D drive is used when omitted.

Details
When a file name is omitted, 0 to 99 are added to files. If all of the numbers is already used, no more files can be saved.
Files is saved in the following directory of the specified drive.
\Anritsu Corporation\Signal Analyzer\User Data\Trace Data\Spectrum Analyzer
Up to 1000 files can be saved in the folder.
This command is not available when Spectrum Emission Mask is set to On and when Gate View is set to Off.

Example of Use
To save a waveform data file “trace” into drive E.
SVCSVWAVE "trace",e
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**SWEPCOUNT?**

Sweep Count

**Function**

This command queries the sweep count.

**Query**

SWEPCOUNT?

**Response**

count  Sweep count
Range    0 to 9999

**Details**

During the Spectrum Emission Mask measurement, the sweep count is displayed as a percentage in the screen.

Convert it in percentage as follows:

\[
\text{Count} / \text{Specified storage count} \times 100
\]

**Example of Use**

To query the sweep count.

SWEPCOUNT?

> 1
SWE:EGAT:HOLD/SWE:EGAT:HOLD?

Gate Hold

Function

This command sets the time during which gate input is disabled for a set time, from the first gate input signal until the next gate signal input, during gate sweep.

Command

SWE:EGAT:HOLD time

Query

SWE:EGAT:HOLD?

Response

time

  Suffix code  None. Value is returned in s units.

Parameter

time  Offset time

  Range  0 to 1 s
  Resolution  10 ns
  Suffix code  NS, US, MS, S

  S is used when the suffix code is omitted.

  Default  100 µs

Details

This command is not available for MS269x Series.
The Gate Hold (ON/OFF) function is set to ON when the value is changed with this function.

Example of Use

To set the gate input disable time to 100 ms.

SWE:EGAT:HOLD 100ms
SWE:EGAT:HOLD?
> 0.10000000
**Chapter 4  Native Device Message Details**


Gate Hold On/Off

**Function**

This command switches On/Off the function to disable gate input for a set time, from the first gate input signal until the next gate signal input, during gate sweep.

**Command**

SWE:EGAT:HOLD:STAT switch_com

**Query**

SWE:EGAT:HOLD:STAT?

**Response**

switch_res

**Parameter**

<table>
<thead>
<tr>
<th>switch_com</th>
<th>Description</th>
</tr>
</thead>
<tbody>
<tr>
<td>ON</td>
<td>1</td>
</tr>
<tr>
<td>OFF</td>
<td>0</td>
</tr>
</tbody>
</table>

<table>
<thead>
<tr>
<th>switch_res</th>
<th>Description</th>
</tr>
</thead>
<tbody>
<tr>
<td>1</td>
<td>Gate Hold is On.</td>
</tr>
<tr>
<td>0</td>
<td>Gate Hold is Off.</td>
</tr>
</tbody>
</table>

**Details**

This command is not available for MS269x Series.

The Gate Sweep (On/Off) function is automatically set to On when this function is set to On.

**Example of Use**

To set the gate input disable time setting to On.

SWE:EGAT:HOLD:STAT ON
SWE:EGAT:HOLD:STAT?
> 1
SWE:EGAT:TIME/SWE:EGAT:TIME?
Gate View Sweep Time

Function

This command sets the sweep time for Gate View.
This parameter and the one for setting the sweep time for time axis measurement reference the same value.

Command

SWE:EGAT:TIME time

Query

SWE:EGAT:TIME?

Response

time

Parameter

time

Sweep time

Range

1 µs to 1000 s

Resolution

1 ms (time ≤ 1 s)
0.1 s (1 s < time < 10 s)
1 s (10 s ≤ time)

Suffix code

NS, US, MS, S
S is used when omitted.

Details

This command is not available when Gate View is set to Off.

Example of Use

To set the sweep time to 100 ms.
SWE:EGAT:TIME 0.1
SWE:EGAT:TIME?
> 0.100000
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SWE:EGAT:VIEW/SWE:EGAT:VIEW?
Gate View

Function

This command sets whether to display the gate view.

Command

SWE:EGAT:VIEW switch_com

Query

SWE:EGAT:VIEW?

Response

switch_res

Parameter

<table>
<thead>
<tr>
<th>switch_com</th>
<th>Displays or hides Gate View.</th>
</tr>
</thead>
<tbody>
<tr>
<td>OFF</td>
<td>0</td>
</tr>
<tr>
<td>ON</td>
<td>1</td>
</tr>
</tbody>
</table>

switch_res

<table>
<thead>
<tr>
<th>Displays or hides Gate View.</th>
</tr>
</thead>
<tbody>
<tr>
<td>0</td>
</tr>
<tr>
<td>1</td>
</tr>
</tbody>
</table>

Details

This command is not available during time domain measurement. This command is not available when Gate Sweep is set to Off. This command is not available when the N dB Bandwidth measurement function is On. This command is not available when the Math function is other than Off.

Example of Use

To display Gate View.
SWE:EGAT:VIEW ON
SWE:EGAT:VIEW?
> 1
Gate View Resolution Bandwidth

**Function**
This command sets the resolution bandwidth (RBW) for Gate View. This parameter and the one for setting the RBW for time axis measurement reference the same value.

**Command**
```
SWE:EGAT:VIEW:BAND freq
```

**Query**
```
SWE:EGAT:VIEW:BAND?
```

**Response**
```
freq
```

**Parameter**
- `freq` Resolution bandwidth (RBW)
- [**MS269xA**]
  - Range/Resolution 30 Hz to 31.25 MHz
  - However, the settable value is 30 Hz to 3 MHz (1-3 sequence), 50 kHz, 5 MHz, 10 MHz, 20 MHz or 31.25 MHz.
- [**MS2830A**, **MS2840A**]
  - Range/Resolution 30 Hz to 31.25 MHz
  - However, the settable value is 30 Hz to 3 MHz (1-3 sequence), 500 Hz, 50 kHz, 2 MHz, 5 MHz, 10 MHz, 20 MHz or 31.25 MHz.
- [**MS2850A**]
  - Range/Resolution 30 Hz to 31.25 MHz
  - However, the settable value is 30 Hz to 3 MHz (1-3 sequence), 500 Hz, 50 kHz, 2 MHz, 5 MHz, or 10 MHz.
- [Common]
  - Suffix code HZ, KHZ, KZ, MHZ, MZ, GHZ, GZ
  - Hz is used when omitted.

**Details**
The automatic resolution bandwidth setting function is disabled when the resolution bandwidth (RBW) is changed. This command is not available when Gate View is set to Off.
Example of Use

To set the RBW for Gate View to 3 kHz.
SWE:EGAT:VIEW:BAND 3KHZ
SWE:EGAT:VIEW:BAND?
> 3000

Gate View Resolution Bandwidth Auto/Manual

**Function**

This command automatically sets the resolution bandwidth (RBW) for Gate View. This parameter and the one for automatically setting the RBW for time axis measurement reference the same value.

**Command**

SWE:EGAT:VIEW:BAND:AUTO switch_com

**Query**

SWE:EGAT:VIEW:BAND:AUTO?

**Response**

switch_res

**Parameter**

<table>
<thead>
<tr>
<th>Parameter</th>
<th>Description</th>
</tr>
</thead>
<tbody>
<tr>
<td>switch_com</td>
<td>Automatic setting</td>
</tr>
<tr>
<td>OFF</td>
<td>0</td>
</tr>
<tr>
<td>ON</td>
<td>1</td>
</tr>
</tbody>
</table>

<table>
<thead>
<tr>
<th>Parameter</th>
<th>Description</th>
</tr>
</thead>
<tbody>
<tr>
<td>switch_res</td>
<td>Automatic setting</td>
</tr>
<tr>
<td>0</td>
<td>Automatic setting is Off.</td>
</tr>
<tr>
<td>1</td>
<td>Automatic setting is On.</td>
</tr>
</tbody>
</table>

**Details**

This command is not available when Gate View is set to Off.

**Example of Use**

To enable the automatic setting of the RBW for Gate View.

```
SWE:EGAT:VIEW:BAND:AUTO ON
SWE:EGAT:VIEW:BAND:AUTO?
> 1
```
Chapter 4  Native Device Message Details

Gate View Video Bandwidth

**Function**
This command sets the video bandwidth (VBW) for Gate View. This parameter and the one for setting the VBW for time axis measurement reference the same value.

**Command**
```
SWE:EGAT:VIEW:BAND:VID freq
```

**Query**
```
SWE:EGAT:VIEW:BAND:VID?
```

**Response**
```
freq
```

**Parameter**
- `freq`  
  - Video bandwidth (VBW)
  - **Range/Resolution**: 1 Hz to 10 MHz (1-3 sequence), 5 kHz, OFF
  - **Suffix code**: HZ, KHZ, KZ, MHZ, MZ, GHZ, GZ
  - Hz is used when omitted.

**Details**
The automatic video bandwidth setting function is disabled when the video bandwidth (VBW) is changed.
This command is not available when Gate View is set to Off.
This command is not available when Gate View Detection is set to RMS.

**Example of Use**
To set the VBW to 3 kHz.
```
SWE:EGAT:VIEW:BAND:VID 3KHZ
SWE:EGAT:VIEW:BAND:VID?
> 3000
```
Gate View Video Bandwidth Auto/Manual

**Function**
This command automatically sets the video bandwidth (VBW) for Gate View. This parameter and the one for setting the VBW for time axis measurement reference the same value.

**Command**
```
SWE:EGAT:VIEW:BAND:VID:AUTO switch_com
```

**Query**
```
SWE:EGAT:VIEW:BAND:VID:AUTO?
```

**Response**
```
switch_res
```

**Parameter**
- **switch_com**
  - OFF|0: Disables the automatic setting.
  - ON|1: Enables the automatic setting.
- **switch_res**
  - 0: Automatic setting Off.
  - 1: Automatic setting On.

**Details**
This command is not available when Gate View is set to Off.

**Example of Use**
To enable the automatic setting for VBW.
```
SWE:EGAT:VIEW:BAND:VID:AUTO ON
SWE:EGAT:VIEW:BAND:VID:AUTO?
> 1
```
Gate View Detection Mode

Function

This command selects the waveform pattern detection mode for Gate View.
This parameter and the one for setting the waveform pattern detection mode for time axis measurement reference the same value.

Command

SWE:EGAT:VIEW:DET det

Query

SWE:EGAT:VIEW:DET?

Response

det

Parameter

det

Detection mode
NORM Simultaneous detection of positive and negative peaks
POS Positive peak detection
NEG Negative peak detection
SAMP Sample detection
RMS RMS detection

Details

This command is not available when Gate View is set to Off.

Example of Use

To set the detection mode to positive peak detection.
SWE:EGAT:VIEW:DET POS
SWE:EGAT:VIEW:DET?
> POS

**Gate View Frequency**

**Function**

This command sets the center frequency for Gate View.

**Command**

`SWE:EGAT:VIEW:FREQ freq`

**Query**

`SWE:EGAT:VIEW:FREQ?`

**Response**

`freq`

**Parameter**

<table>
<thead>
<tr>
<th>freq</th>
<th>Center Frequency</th>
</tr>
</thead>
<tbody>
<tr>
<td>[MS269xA]</td>
<td>−100 MHz to 6.05 GHz (MS2690A)</td>
</tr>
<tr>
<td>[MS2830A]</td>
<td>−100 MHz to 3.7 GHz (MS2830A-040)</td>
</tr>
<tr>
<td>[MS2840A]</td>
<td>−100 MHz to 3.7 GHz (MS2840A-040)</td>
</tr>
<tr>
<td>[MS2850A]</td>
<td>−100 MHz to 32.5 GHz (MS2850A-047)</td>
</tr>
</tbody>
</table>

**Resolution**

1 Hz

**Suffix code**

HZ, KHZ, KZ, MHZ, MZ, GHZ, GZ

Hz is used when omitted.

**Details**

This command is not available when Gate View is set to Off.

**Example of Use**

To set the center frequency for Gate View.

```
SWE:EGAT:VIEW:FREQ 123456
SWE:EGAT:VIEW:FREQ?
> 123456
```
**Chapter 4  Native Device Message Details**

Gate View Frequency Mode

**Function**  
This command selects the center frequency setting mode for Gate View.

**Command**  
*SWE:EGAT:VIEW:FREQ:AUTO* switch_com

**Query**  
*SWE:EGAT:VIEW:FREQ:AUTO?*

**Response**  
switch_res

**Parameter**

<table>
<thead>
<tr>
<th>switch_com</th>
<th>Center frequency setting mode</th>
</tr>
</thead>
<tbody>
<tr>
<td>OFF</td>
<td>0</td>
</tr>
<tr>
<td>ON</td>
<td>1</td>
</tr>
</tbody>
</table>

<table>
<thead>
<tr>
<th>switch_res</th>
<th>Center frequency setting mode</th>
</tr>
</thead>
<tbody>
<tr>
<td>0</td>
<td>Sets the center frequency manually.</td>
</tr>
<tr>
<td>1</td>
<td>Automatically sets the center frequency to that for the frequency domain.</td>
</tr>
</tbody>
</table>

**Details**  
This command is not available when Gate View is set to Off.

**Example of Use**

To manually set the center frequency for Gate View.

*SWE:EGAT:VIEW:FREQ:AUTO* OFF
*SWE:EGAT:VIEW:FREQ:AUTO?*

> 0

Gate View Trace Point

Function

This command sets the number of trace display points for Gate View. This parameter and the one for setting the number of trace display points for time axis measurement reference the same value.

Command

SWE:EGAT:VIEW:POIN integer

Query

SWE:EGAT:VIEW:POIN?

Response

integer

Parameter

integer Number of trace display points
11 11 points
21 21 points
41 41 points
51 51 points
101 101 points
201 201 points
251 251 points
401 401 points
501 501 points
1001 1001 points
2001 2001 points
5001 5001 points
10001 10001 points
30001 30001 points
(MS269xA, MS2830A, MS2840A Only)

Details

This command is not available when Gate View is set to Off.

Example of Use

To set the number of trace display points to 2001.

SWE:EGAT:VIEW:POIN 2001
SWE:EGAT:VIEW:POIN?
> 2001
**Chapter 4  Native Device Message Details**

**SWE:RUL/SWE:RUL?**  
Auto Sweep Type Select Rules

**Function**  
This command sets the rule for switching between sweep and FFT during measurement.

**Command**  
SWE:RUL rules

**Query**  
SWE:RUL?

**Parameter**  
**rules**  
- **DRAN**  
  Selects sweep/FFT prioritizing dynamic range.
- **SPE**  
  Selects sweep/FFT prioritizing measurement speed.
- **OSW**  
  Uses only sweep.
- **PSW**  
  Prioritizes sweep for selection. Uses FFT only for RBW that cannot be measured by sweep.
- **PFFT**  
  Prioritizes FFT for selection. Uses sweep only for RBW that cannot be measured by FFT.

**Details**  
This command is not available for MS269x Series.
Uses 40 kHz or lower for the FFT width when DRANge is specified.
Uses 2 MHz or lower for the FFT width when SPEed is specified.
Uses 40 kHz or lower for the FFT width when PSWeep is specified.
The specified width is used as the FFT width on a priority basis, but it is automatically changed by the SPAN/RBW/VBW measurement conditions.
The setting is fixed to OSWeep during time domain (0span).
The setting is fixed to OSWeep when Gate Sweep is On.
The setting is fixed to OSWeep when Sweep Time(Auto/Manual) is Manual.
The setting is fixed to OSWeep during Spurious Emission measurement.
Fixed to OSWeep when Signal Generator Control is On.

**Example of Use**  
To give priority to dynamic range for the sweep/FFT switch rule.
```plaintext
SWE:RUL DRAN  
SWE:RUL?  
> DRAN
```
SWE:RUL:FFT:RWID?
Sweep Type Select Rules Real FFT Width Query

Function

This command queries the FFT width that is actually used for the sweep/FFT switch rule during measurement.

Query

SWE:RUL:FFT:RWID?

Response

freq  FFT width
Range  40 kHz or 2 MHz
Resolution  1 Hz
Suffix code  None. Value is returned in Hz units.

Details

This command is not available for MS269x Series.
The specified width is used as the FFT width on a priority basis, but it is automatically changed by the SPAN/RBW/VBW measurement conditions.
This command queries the FFT width that is actually used.

Example of Use

To query the FFT width that is actually used.
SWE:RUL:FFT:RWID?
> 40000
Chapter 4  Native Device Message Details

Sweep Type Select Rules FFT Width

Function

This command sets the FFT width when FFT Priority is selected, for the sweep/FFT Switching rules during measurement.

Command

SWE:RUL:FFT:WIDT freq

Query

SWE:RUL:FFT:WIDT?

Parameter

<table>
<thead>
<tr>
<th>freq</th>
<th>FFT width</th>
</tr>
</thead>
<tbody>
<tr>
<td>Range</td>
<td>40 kHz or 2 MHz</td>
</tr>
<tr>
<td>Resolution</td>
<td>1 Hz</td>
</tr>
<tr>
<td>Suffix code</td>
<td>HZ, KHZ, KZ, MHZ, MZ, GHZ, GZ</td>
</tr>
</tbody>
</table>

Hz is used when omitted.

Default 40 kHz

Details

This command is not available for MS269x Series.

When a value other than 40 kHz or 2 MHz is set, the value is rounded off to the smaller value and set.

This command can be set only when Sweep Type Rules is FFT Priority.

The specified width is used as the FFT width on a priority basis, but it is automatically changed by the SPAN/RBW/VBW measurement conditions.

Example of Use

To set the FFT width to 40 kHz.
SWE:RUL:FFT:WIDT 40KHZ
SWE:RUL:FFT:WIDT?
> 40000
**SWE:RUL:RTYP?**

Sweep Type Select Rules Real Type Query

**Function**

This command queries the sweep mode (sweep or FFT) that is executed during measurement.

**Query**

`SWE:RUL:RTYP?`

**Response**

`type`

**Parameter**

<table>
<thead>
<tr>
<th>type</th>
<th>Sweep mode</th>
</tr>
</thead>
<tbody>
<tr>
<td>SWE</td>
<td>Performs measurement using sweep.</td>
</tr>
<tr>
<td>FFT</td>
<td>Performs measurement using FFT.</td>
</tr>
</tbody>
</table>

**Details**

This command is not available for MS269x Series.

**Example of Use**

To query the sweep type used for measurement under the current setting.

```
SWE:RUL:RTYP?
> FFT
```
Chapter 4  Native Device Message Details

**SWP/SWP?**
Single Sweep/Sweep Status Query

**Function**
This command sets the sweep mode to single and starts single sweep. Also, it reads the sweep status (sweep done/during sweeping).

**Command**
SWP

**Query**
SWP?

**Response**

<table>
<thead>
<tr>
<th>status</th>
<th>Sweep status</th>
</tr>
</thead>
<tbody>
<tr>
<td>0</td>
<td>Sweep done</td>
</tr>
<tr>
<td>1</td>
<td>During sweeping</td>
</tr>
</tbody>
</table>

**Details**
Starting sweep with this function makes the following command wait without being processed until sweep is finished.

**Example of Use**
To start single sweep and read the sweep status.
SNGLS
SWP?
> 1
SWSTART
Restart Sweep

Function
This command restarts the sweep.

Command
SWSTART

Example of Use
To restart sweep.
SWSTART

SWSTOP
Stop Sweep

Function
This command stops the sweep.

Command
SWSTOP

Example of Use
To stop sweep.
SWSTOP
**TDLY/TDLY?**

**Trigger Delay**

Function

This command sets the delay from the trigger occurrence point to sweep start.

Command

TDLY time

Query

TDLY?

Response

time

No suffix code. Value is returned in $\mu$s units.

Parameter

<table>
<thead>
<tr>
<th>time</th>
<th>Delay time to start gating</th>
</tr>
</thead>
<tbody>
<tr>
<td>Range</td>
<td>–1 to 1 s</td>
</tr>
<tr>
<td>Resolution</td>
<td>20 ns</td>
</tr>
<tr>
<td>Suffix code</td>
<td>NS, US, MS, S</td>
</tr>
<tr>
<td>ms is used when omitted.</td>
<td></td>
</tr>
</tbody>
</table>

Example of Use

To set the trigger delay time to 20 ms.

TDLY 20
TDLY 20000US
TDLY 20MS
TDLY 0.02S
TDLY?
> 20000
**TITLE/TITLE?**

Register Title

**Function**

This command registers the title character string.

**Command**

```plaintext
TITLE string
```

**Query**

```plaintext
TITLE?
```

**Response**

```plaintext
string
```

**Parameter**

```plaintext
string  Character string within 32 characters enclosed by double quotes (" ") or single quotes (’ )
```

**Example of Use**

To set the title character string.

```plaintext
TITLE "MS2690A"
TITLE 'SPECTRUM ANALYZER'
TITLE?
> SPECTRUM ANALYZER
```
**Chapter 4  Native Device Message Details**

**TRAC:SEM?**
Query Trace Data Spectrum Emission Mask

**Function**
This function reads the trace data for Spectrum Emission Mask measurement.

**Query**
TRAC:SEM? trace

**Response**
data_1, data_2, ...

**Parameter**
- **trace**
  - Trace to save
- **REF**
  - Reference trace
- **LOW1**
  - Offset1 Lower side trace
- **LOW2**
  - Offset2 Lower side trace
- **LOW3**
  - Offset3 Lower side trace
- **LOW4**
  - Offset4 Lower side trace
- **LOW5**
  - Offset5 Lower side trace
- **LOW6**
  - Offset6 Lower side trace
- **UPP1**
  - Offset1 Upper side trace
- **UPP2**
  - Offset2 Upper side trace
- **UPP3**
  - Offset3 Upper side trace
- **UPP4**
  - Offset4 Upper side trace
- **UPP5**
  - Offset5 Upper side trace
- **UPP6**
  - Offset6 Upper side trace
- **data_n**
  - Level data
- **Resolution**
  - Integer value for 0.001 dB units
- **Suffix code**
  - None, value is returned in 0.001 dBm units.

**Details**
This function reads the Positive trace data when the Detection mode is Positive & Negative (Normal mode). When Spectrum Emission Mask measurement is Off, –999.0 is returned as the trace point minutes and seconds.

**Example of Use**
To read Reference data.
TRAC:SEM? REF
> -20.000, -20.231, -21.233, ...
TRAC:SEM:NEG?
Query Negative Trace Data Spectrum Emission Mask

Function
This function reads the Negative Spectrum Emission Mask trace data when the Detection mode is Pos&Neg (Normal mode).

Query
TRACe:SEM:NEG? trace

Response
data_1, data_2, ...

Parameter
- trace: Trace to save
  - REF: Reference trace
  - LOW1: Offset1 Lower side trace
  - LOW2: Offset2 Lower side trace
  - LOW3: Offset3 Lower side trace
  - LOW4: Offset4 Lower side trace
  - LOW5: Offset5 Lower side trace
  - LOW6: Offset6 Lower side trace
  - UPP1: Offset1 Upper side trace
  - UPP2: Offset2 Upper side trace
  - UPP3: Offset3 Upper side trace
  - UPP4: Offset4 Upper side trace
  - UPP5: Offset5 Upper side trace
  - UPP6: Offset6 Upper side trace

- data_n: Level data
- Resolution: Integer value for 0.001 dB units
- Suffix code: None, value is returned in 0.001 dBm units.

Details
This function reads the Negative trace data when the Detection mode is Positive & Negative (Normal mode). It reads the trace data acquired in the last Positive & Negative (Normal mode) in other detection modes. When Spectrum Emission Mask measurement is Off, –999.0 is returned as the trace point minutes and seconds.

Example of Use
To read Reference data.
TRAC:SEM:NEG? REF
> -20.000, -20.231, -21.233, ...
**Chapter 4  Native Device Message Details**

**TRGLVL/TRGLVL?**

**Trigger Level**

**Function**

This command sets the threshold value of the level where trigger sweep starts.

**Command**

TRGLVL level

**Query**

TRGLVL?

**Response**

level

No suffix code. Refer to the parameters below for numerical values.

**Parameter**

level  
Threshold value of level where trigger sweep starts

When trigger signal source is video detection (Video) and at log scale:
- **Range**: –150 to +50 dBm
- **Resolution**: 1 dB
- **Suffix code**: DBM, DM
  - dBm is used when omitted.

When trigger signal source is video detection (Video) and at linear scale:
- **Range**: 0 to 100%
- **Resolution**: 1%
- **Suffix code**: None

When trigger signal source is wideband IF detection (Wide IF Video):
- **Range**: –60 to 50 dBm
- **Resolution**: 1 dB
- **Suffix code**: DBM, DM
  - dBm is used when omitted.

**Details**

These settings are applied when the trigger signal source is video detection (Video) or wideband IF detection (Wide IF Video).
Example of Use

To set the threshold value of the level where trigger sweep starts to -10 dBm.
TRGLVL -10DBM
TRGLVL?
> -10

**TRGS/TRGS?**

Trigger Switch

Function

This command sets trigger sweep ON/OFF.

Command

TRGS switch

Query

TRGS?

Response

switch

Parameter

<table>
<thead>
<tr>
<th>switch</th>
<th>Trigger sweep ON/OFF</th>
</tr>
</thead>
<tbody>
<tr>
<td>FREE</td>
<td>No trigger sweep (Free Run)</td>
</tr>
<tr>
<td>TRGD</td>
<td>Sweep when triggered (Triggered)</td>
</tr>
</tbody>
</table>

Details

This command is not available when Signal Generator Control is On.

Example of Use

To set to wait for a sweep trigger.
TRGS TRGD
TRGS?
> TRGD
Chapter 4  Native Device Message Details

TRGSLP/TRGSLP?

Trigger Slope

Function

This command sets the trigger detection mode (rise/fall).

Command

TRGSLP edge

Query

TRGSLP?

Response

edge

Parameter

edge

Trigger detection mode

RISE

Detects at the rising edge.

FALL

Detects at the falling edge.

Details

This function selects the trigger detection mode when the trigger signal source is video detection (Video), wideband IF detection (Wide IF Video), external input (External), SG Marker, or Baseband Interface (BBIF).

Example of Use

To detect at the rising edge.
TRGSLP RISE
TRGSLP?
> RISE
**TRGSOURCE/TRGSOURCE?**

**Trigger Source**

**Function**

This command selects trigger source.

**Command**

TRGSOURCE source

**Query**

TRGSOURCE?

**Response**

source

**Parameter**

<table>
<thead>
<tr>
<th>source</th>
<th>Trigger signal source</th>
</tr>
</thead>
<tbody>
<tr>
<td>[MS269xA]</td>
<td>VID Video detection (Video)</td>
</tr>
<tr>
<td></td>
<td>WIDEVID Wideband IF detection (Wide IF Video)</td>
</tr>
<tr>
<td></td>
<td>EXT External input (External)</td>
</tr>
<tr>
<td></td>
<td>SG SG Marker</td>
</tr>
<tr>
<td></td>
<td>BBIF Baseband Interface (BBIF)</td>
</tr>
<tr>
<td>[MS2830A], [MS2840A]</td>
<td>VID Video detection (Video)</td>
</tr>
<tr>
<td></td>
<td>WIDEVID Wideband IF detection (Wide IF Video)</td>
</tr>
<tr>
<td></td>
<td>EXT External input (External)</td>
</tr>
<tr>
<td></td>
<td>SG SG Marker</td>
</tr>
<tr>
<td></td>
<td>FRAME Frame period trigger</td>
</tr>
<tr>
<td>[MS2850A]</td>
<td>VID Video detection (Video)</td>
</tr>
<tr>
<td></td>
<td>WIDEVID Wideband IF detection (Wide IF Video)</td>
</tr>
<tr>
<td></td>
<td>EXT External input (External 1)</td>
</tr>
<tr>
<td></td>
<td>EXT2 External input (External 2)</td>
</tr>
<tr>
<td></td>
<td>FRAME Frame period trigger</td>
</tr>
</tbody>
</table>

**Details**

[MS269xA]

SG Marker trigger can be selected only when the Option 020/120 Vector Signal Generator is installed.

BBIF trigger cannot be selected only when the Option 040/140 Baseband Interface Unit is not installed or the software package is Ver.6.00.00 or later.

[MS2830A], [MS2840A]

SG marker trigger can be selected only when the Option 020/120/021/121 Vector Signal Generator is installed.
Example of Use

To set the trigger signal source to video trigger.

`TRGSOURCE VID`

`TRGSOURCE?`  
`> VID`
TRIG:FRAM:OFFS/TRIG:FRAM:OFFS?
Frame Sync Offset

Function

This command sets the offset time from frame trigger occurrence signal source input until the frame trigger occurrence.

Command

TRIG:FRAM:OFFS time

Query

TRIG:FRAM:OFFS?

Parameter

time Offset time
  Range 0 to 1 s
  Resolution 10 ns
  Suffix code NS, US, MS, S
  S is used when the suffix code is omitted.
  Default 0 s

Details

This command is not available for MS269x Series.
This setting is shared by the trigger signal and gate signal. The same value is also used when frame trigger is selected as the gate signal source for gate sweep.

Example of Use

To set the frame trigger occurrence offset time to 100 ms.
TRIG:FRAM:OFFS 100MS
TRIG:FRAM:OFFS?
> 0.100000
TRIG:FRAM:PER/TRIG:FRAM:PER?
Frame Trigger Period

Function

This command sets the trigger occurrence period of the frame trigger.

Command

TRIG:FRAM:PER time

Query

TRIG:FRAM:PER?

Parameter

<table>
<thead>
<tr>
<th>Parameter</th>
<th>Description</th>
<th>Range</th>
</tr>
</thead>
<tbody>
<tr>
<td>time</td>
<td>Frame trigger</td>
<td>1 µs to 1 s</td>
</tr>
<tr>
<td>Range</td>
<td></td>
<td>10 ns</td>
</tr>
<tr>
<td>Resolution</td>
<td>Suffix code</td>
<td>NS,US,MS,S</td>
</tr>
<tr>
<td>S</td>
<td></td>
<td>S is used when the suffix code is omitted.</td>
</tr>
<tr>
<td>Default</td>
<td></td>
<td>10 ms</td>
</tr>
</tbody>
</table>

Details

This command is not available for MS269x Series.
This setting is shared by the trigger signal and gate signal. The same value is also used when frame trigger is selected as the gate signal source for gate sweep.

Example of Use

To set the frame trigger occurrence period to 10 ms.
TRIG:FRAM:PER 10MS
TRIG:FRAM:PER?
> 0.01000000
TRIG:FRAM:SYNC/TRIG:FRAM:SYNC?

Frame Sync Source

Function

This command selects the synchronized signal source for frame trigger start.

Command

TRIG:FRAM:SYNC sync

Query

TRIG:FRAM:SYNC?

Parameter

<table>
<thead>
<tr>
<th>sync</th>
<th>Synchronized signal source</th>
</tr>
</thead>
<tbody>
<tr>
<td>EXT</td>
<td>External input (Default)</td>
</tr>
<tr>
<td>IMM</td>
<td>Free run</td>
</tr>
<tr>
<td>WIF</td>
<td>Wideband IF detection (Wide IF Video)</td>
</tr>
</tbody>
</table>

Details

This command is not available for MS269x Series.
This setting is shared by the trigger signal and gate signal. The same value is also used when frame trigger is selected as the gate signal source for gate sweep.

Example of Use

To set the frame trigger synchronized source to Wide IF Video trigger.
TRIG:FRAM:SYNC WIF

To query the frame trigger synchronized signal source.
TRIG:FRAM:SYNC?
> WIF
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TRIG:HOLD/TRIG:HOLD?
Trigger Hold

Function

This command sets the time during which trigger input is disabled for a set time, from the first trigger input until the next trigger input.

Command

TRIG:HOLD time

Query

TRIG:HOLD?

Parameter

<table>
<thead>
<tr>
<th>Parameter</th>
<th>Offset time</th>
</tr>
</thead>
<tbody>
<tr>
<td>time</td>
<td>0 to 1 s</td>
</tr>
<tr>
<td>Range</td>
<td>10 ns</td>
</tr>
<tr>
<td>Resolution</td>
<td></td>
</tr>
<tr>
<td>Suffix code</td>
<td>NS, US, MS, S</td>
</tr>
<tr>
<td>Default</td>
<td>100 µs</td>
</tr>
</tbody>
</table>

Details

This command is not available for MS269x Series.
The Trigger Hold (ON/OFF) function is set to ON when the value is changed with this function.
This command is not available for video trigger.

Example of Use

To set the trigger input disable time to 100 ms.
TRIG:HOLD 100MS
TRIG:HOLD?
> 0.10000000
TRIG:HOLD:STAT/TRIG:HOLD:STAT?
Trigger Hold On/Off

Function
This command sets On/Off the function to disable trigger input for a set time, from the first trigger input until the next trigger input.

Command
TRIG:HOLD:STAT switch_com

Query
TRIG:HOLD:STAT?

Response
Switch_res

Parameter

<table>
<thead>
<tr>
<th>switch_com</th>
<th>Trigger Hold On/Off</th>
</tr>
</thead>
<tbody>
<tr>
<td>ON</td>
<td>1</td>
</tr>
<tr>
<td>OFF</td>
<td>0</td>
</tr>
</tbody>
</table>

<table>
<thead>
<tr>
<th>switch_res</th>
<th>Trigger Hold On/Off</th>
</tr>
</thead>
<tbody>
<tr>
<td>1</td>
<td>Trigger Hold function is On.</td>
</tr>
<tr>
<td>0</td>
<td>Trigger Hold function is Off.</td>
</tr>
</tbody>
</table>

Details
This command is not available for MS269x Series. The Trigger (On/Off) function is automatically set to On when this function is set to On.

Example of Use
To set the trigger input disable time setting to On.
TRIG:HOLD:STAT ON
TRIG:HOLD:STAT?
> 1
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**TS**

**Single Sweep**

**Function**

This command sets the sweep mode to single and starts single sweep.

**Command**

`TS`

**Details**

Starting sweep with this function makes the following command wait without being processed until sweep is finished.

**Example of Use**

To start single sweep.

`TS`

**TSAVG**

**Average Sweep**

**Function**

This command sets the storage mode to Average and starts sweep.

**Command**

`TSAVG`

**Details**

Starting sweep with this function makes the following command wait without being processed until sweep is finished.

**Example of Use**

To set the storage mode to Average and start sweep.

`TSAVG`
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**TSLINAVG**
Linear Average Sweep

**Function**
This command sets storage mode to Linear Average and starts sweep.

**Command**
TSLINAVG

**Details**
Starting sweep with this function makes the following command wait without being processed until sweep is finished.

**Example of Use**
To set the storage mode to Linear Average and start sweep.
TSLINAVG

**TSMAXHOLD**
Max Hold Sweep

**Function**
This command sets the storage mode to Max Hold and start sweep.

**Command**
TSMAXHOLD

**Details**
Starting sweep with this function makes the following command wait without being processed until sweep is finished.

**Example of Use**
To set the storage mode to Max Hold and start sweep.
TSMAXHOLD
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TSMINHOLD
Min Hold Sweep

Function
This command sets the storage mode to Min Hold and starts sweep.

Command
TSMINHOLD

Details
Starting sweep with this function makes the following command wait without being processed until sweep is finished.

Example of Use
To set the storage mode to Min Hold and start sweep.
TSMINHOLD

TTL/TTL?
Display Title

Function
This command displays/hides the title.

Command
TTL on_off

Query
TTL?

Response
on_off

Parameter
on_off
Title display On/Off
ON
Displays the title.
OFF
Hides the title.

Example of Use
To display the title.
TTL ON
TTL?
> ON
**UCL?**

Uncal Status Query

**Function**

This command queries the UNCAL status.

**Query**

UCL?

**Response**

status

**Parameter**

<table>
<thead>
<tr>
<th>status</th>
<th>UNCAL status</th>
</tr>
</thead>
<tbody>
<tr>
<td>0</td>
<td>Normal</td>
</tr>
<tr>
<td>1</td>
<td>UNCAL</td>
</tr>
</tbody>
</table>

**Example of Use**

To query the UNCAL status.

UCL?

> 1
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UNC/UNC?
Display Uncal Message

Function
This command displays/hides UNCAL messages at Uncal.

Command
UNC on_off

Query
UNC?

Response
on_off

Parameter

<table>
<thead>
<tr>
<th>on_off</th>
<th>UNCAL display On/Off</th>
</tr>
</thead>
<tbody>
<tr>
<td>ON</td>
<td>Displays UNCAL.</td>
</tr>
<tr>
<td>OFF</td>
<td>Hides UNCAL.</td>
</tr>
</tbody>
</table>

Example of Use
To hide UNCAL.
UNC OFF
UNC?
> OFF
VAVG/VAVG?
Average Mode (Active Trace)

Function

This command sets the active trace average processing to On/Off and also sets the average count.

Command

VAVG on_off
VAVG count

Query

VAVG?

Response

count

Parameter

<table>
<thead>
<tr>
<th>on_off</th>
<th>Average processing On/Off</th>
</tr>
</thead>
<tbody>
<tr>
<td>ON</td>
<td>ON</td>
</tr>
<tr>
<td>OFF</td>
<td>OFF</td>
</tr>
</tbody>
</table>

<table>
<thead>
<tr>
<th>count</th>
<th>Average count</th>
</tr>
</thead>
<tbody>
<tr>
<td>Range</td>
<td>2 to 9999</td>
</tr>
</tbody>
</table>

Example of Use

To set the average count to 128 times.

VAVG ON
VAVG 128
VAVG?
> 128
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VB/VB?
Video Bandwidth

Function
This command sets the video bandwidth (VBW). When Couple Time/Frequency Domain is set to Off, each parameter is specified in accordance with the already-specified frequency axis or time axis measurement.

Command

<table>
<thead>
<tr>
<th>Command</th>
<th>Description</th>
</tr>
</thead>
<tbody>
<tr>
<td>VB bandwidth</td>
<td></td>
</tr>
<tr>
<td>VB AUTO</td>
<td>Sets the resolution bandwidth according to resolution bandwidth (RBW) settings.</td>
</tr>
<tr>
<td>VB OFF</td>
<td>Does not set VBW.</td>
</tr>
</tbody>
</table>

Query

<table>
<thead>
<tr>
<th>Query</th>
<th>Description</th>
</tr>
</thead>
<tbody>
<tr>
<td>VB?</td>
<td></td>
</tr>
</tbody>
</table>

Response

<table>
<thead>
<tr>
<th>Response</th>
<th>Description</th>
</tr>
</thead>
<tbody>
<tr>
<td>bandwidth</td>
<td></td>
</tr>
</tbody>
</table>

Parameter

<table>
<thead>
<tr>
<th>Parameter</th>
<th>Description</th>
</tr>
</thead>
<tbody>
<tr>
<td>bandwidth</td>
<td>Video bandwidth (VBW)</td>
</tr>
<tr>
<td>Range/Resolution</td>
<td>1 Hz to 10 MHz (1-3 sequence), 5 kHz, OFF</td>
</tr>
<tr>
<td>Suffix code</td>
<td>HZ, KHZ, KZ, MHZ, MZ, GHZ, GZ</td>
</tr>
<tr>
<td>AUTO</td>
<td>Hz is used when omitted.</td>
</tr>
<tr>
<td>OFF</td>
<td>Sets the resolution bandwidth according to resolution bandwidth (RBW) settings.</td>
</tr>
<tr>
<td></td>
<td>Does not set VBW.</td>
</tr>
</tbody>
</table>

Details
This command is not available during the Spectrum Emission Mask or the Spurious Emission measurement.

Example of Use

To set VBW to 3 kHz.

VB 3KHZ
VB?  
> 3000
VBWMODE/VBWMODE?
Video Bandwidth Mode

Function

This command sets the processing mode of the video bandwidth (VBW).

Command

VBWMODE mode

Query

VBWMODE?

Response

mode

Parameter

mode

<table>
<thead>
<tr>
<th>Parameter</th>
<th>Value</th>
</tr>
</thead>
<tbody>
<tr>
<td>VIDEO</td>
<td>Normal VBW</td>
</tr>
<tr>
<td>POWER</td>
<td>Power VBW</td>
</tr>
</tbody>
</table>

Details

This command is not available during the Spectrum Emission Mask measurement.

Example of Use

To set the mode to Power VBW.

VBWMODE POWER
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WRITEMODE/WRITEMODE?
Trace Write Mode

Function

This command sets the writing mode of the active trace.

Command

WRITEMODE mode

Query

WRITEMODE?

Response

mode

Parameter

<table>
<thead>
<tr>
<th>mode</th>
<th>Trace write mode</th>
</tr>
</thead>
<tbody>
<tr>
<td>0</td>
<td>Updates the display for each measurement (Write mode).</td>
</tr>
<tr>
<td>1</td>
<td>Does not update the display for each measurement (View Mode).</td>
</tr>
<tr>
<td>2</td>
<td>Does not display (Blank mode).</td>
</tr>
</tbody>
</table>

Details

This command is not available during the Spectrum Emission Mask or the Spurious Emission measurement.

Example of Use

To update the active trace display for each measurement.

WRITEMODE 0
# XMA/XMA?

Write and Query Trace Data (Trace A)

## Function

This command writes and queries the trace data of Trace A in ASCII format.

## Command

XMA wpoint,data

## Query

XMA? start,number

## Response

data1,data2,...,data(n)

## Parameter

<table>
<thead>
<tr>
<th>Parameter</th>
<th>Description</th>
</tr>
</thead>
<tbody>
<tr>
<td>wpoint</td>
<td>Specify the writing position as the number of displayed points from the left edge of the screen.</td>
</tr>
<tr>
<td>Range</td>
<td>0 to 10, 20, 40, 50, 100, 200, 250, 400, 500, 1000, 2000, 5000, 10000, 30000 (MS269xA, MS2830A, MS2840A Only)</td>
</tr>
<tr>
<td>data</td>
<td>Level data to be written</td>
</tr>
<tr>
<td>data(n)</td>
<td>Queried level data</td>
</tr>
<tr>
<td>Resolution</td>
<td>Integers in 0.001 dB units (At log scale)</td>
</tr>
<tr>
<td></td>
<td>(Voltage value (V) / Reference level(V)) × 10000 (At linear scale)</td>
</tr>
<tr>
<td>Suffix code</td>
<td>None</td>
</tr>
<tr>
<td></td>
<td>Value is returned in 0.001 dBm units at log scale.</td>
</tr>
<tr>
<td></td>
<td>Value is returned in V units at linear scale.</td>
</tr>
<tr>
<td>start</td>
<td>Specify the loading start position as the number of displayed points from the left edge of the screen.</td>
</tr>
<tr>
<td>Range</td>
<td>0 to 10, 20, 40, 50, 100, 200, 250, 400, 500, 1000, 2000, 5000, 10000, 30000 (MS269xA, MS2830A, MS2840A Only)</td>
</tr>
<tr>
<td>number</td>
<td>Number of data to be loaded</td>
</tr>
<tr>
<td>Range</td>
<td>1 to 11, 21, 41, 51, 101, 201, 251, 401, 501, 1001, 2001, 5001, 10001, 30001 (MS269xA, MS2830A, MS2840A Only)</td>
</tr>
</tbody>
</table>

## Convert unit

For conversion into dBμV, dBmV, V, W, dBμV (emf), and dBμV/m at log scale, refer to “Convert unit” of “Parameter” of “SMA/SMA?” command.
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Details

This function writes or reads positive detection trace data when the detection mode is Positive & Negative (Normal mode).

This command is not available during the Spectrum Emission Mask measurement.

Example of Use

To set –20 dBm at the 1st point and –21 dBm at the 2nd point.

XMA 1,-20000
XMA 2,-21000
XMA? 1,2
> -20000,-21000
XMB/XMB?

Write and Query Trace Data (Trace B)

Function

This command writes and queries the trace data of Trace B in ASCII format.

Command

XMB wpoint,data

Query

XMB? start,number

Response

data1,data2,...,data(n)

Parameter

wpoint Specify the writing position as the number of displayed points from the left edge of the screen.

Range

0 to 10, 20, 40, 50, 100, 200, 250, 400, 500, 1000, 2000, 5000, 10000, 30000 (MS269xA, MS2830A, MS2840A Only)

data Level data to be written
data(n) Queried level data

Resolution Integers in 0.001 dB units (At log scale)

{Voltage value (V) / Reference level(V)} × 10000
(At linear scale)

Suffix code None

Value is returned in 0.001 dBm units at log scale.
Value is returned in V units at linear scale.

start Specify the loading start position as the number of displayed points from the left edge of the screen.

Range

0 to 10, 20, 40, 50, 100, 200, 250, 400, 500, 1000, 2000, 5000, 10000, 30000 (MS269xA, MS2830A, MS2840A Only)

number Number of data to be loaded

Range

1 to 11, 21, 41, 51, 101, 201, 251, 401, 501, 1001, 2001, 5001, 10001, 30001 (MS269xA, MS2830A, MS2840A Only)

Convert unit

For conversion into dBµV, dBmV, V, W, dBµV (emf), and dBµV/m at log scale, refer to “Convert unit” of “Parameter” of “SMA/SMA?” command.
Details

This function writes and queries positive detection trace data when the detection mode is Positive & Negative (Normal mode).

This command is not available in the following cases:

- During the Spectrum Emission Mask measurement.
- During the Spectrum Emission measurement.

Example of Use

To set –20 dBm at the 1st point and –21 dBm at the 2nd point.

XMB 1,-20000
XMB 2,-21000
XMB? 1,2
> -20000,-21000
**XMC/XMC?**

Write and Query Trace Data (Trace C)

**Function**

This command writes and queries the trace data of Trace C in ASCII.

**Command**

XMC wpoint, data

**Query**

XMC? start, number

**Response**

data1, data2, ..., data(n)

**Parameter**

<table>
<thead>
<tr>
<th>Parameter</th>
<th>Description</th>
</tr>
</thead>
<tbody>
<tr>
<td>wpoint</td>
<td>Specify the writing position as the number of displayed points from the left edge of the screen.</td>
</tr>
<tr>
<td>Range</td>
<td>0 to 10, 20, 40, 50, 100, 200, 250, 400, 500, 1000, 2000, 5000, 10000, 30000 (MS269xA, MS2830A, MS2840A Only)</td>
</tr>
<tr>
<td>data</td>
<td>Level data to be written</td>
</tr>
<tr>
<td>data(n)</td>
<td>Queried level data</td>
</tr>
<tr>
<td>Resolution</td>
<td>Integers in 0.001 dB units (At log scale)</td>
</tr>
<tr>
<td></td>
<td>(</td>
</tr>
<tr>
<td>Suffix code</td>
<td>None</td>
</tr>
<tr>
<td></td>
<td>Value is returned in 0.001 dBm units at log scale.</td>
</tr>
<tr>
<td></td>
<td>Value is returned in V units at linear scale.</td>
</tr>
<tr>
<td>start</td>
<td>Specify the loading start position as the number of displayed points from the left edge of the screen.</td>
</tr>
<tr>
<td>Range</td>
<td>0 to 10, 20, 40, 50, 100, 200, 250, 400, 500, 1000, 2000, 5000, 10000, 30000 (MS269xA, MS2830A, MS2840A Only)</td>
</tr>
<tr>
<td>number</td>
<td>Number of data to be loaded</td>
</tr>
<tr>
<td>Range</td>
<td>1 to 11, 21, 41, 51, 101, 201, 251, 401, 501, 1001, 2001, 5001, 10001, 30001 (MS269xA, MS2830A, MS2840A Only)</td>
</tr>
</tbody>
</table>

**Convert unit**

For conversion into dBµV, dBmV, V, W, dBµV (emf), and dBµV/m at log scale, refer to “Convert unit” of “Parameter” of “SMA/SMA?” command.
Details

This function writes and queries the positive detection trace data when the detection mode is Positive & Negative (Normal mode).

This command is not available in the following cases:

- During the Spectrum Emission Mask measurement.
- During the Spectrum Emission measurement.

Example of Use

To set –20 dBm at the 1st point and –21 dBm at the 2nd point.

\begin{verbatim}
XMC 1,-20000
XMC 2,-21000
XMC? 1,2
> -20000,-21000
\end{verbatim}
**XMD/XMD?**

Write and Query Trace Data (Trace D)

**Function**

This command writes and queries the trace data of Trace D in ASCII format.

**Command**

XMD wpoint, data

**Query**

XMD? start, number

**Response**

data1, data2, ..., data(n)

**Parameter**

- **wpoint**
  - Specify the writing position as the number of displayed points from the left edge of the screen.
  - **Range**
    - 0 to 10, 20, 40, 50, 100, 200, 250, 400, 500, 1000, 2000, 5000, 10000, 30000 (MS269xA, MS2830A, MS2840A Only)

- **data**
  - Level data to be written

- **data(n)**
  - Queried level data
  - **Resolution**
    - Integers in 0.001 dB units (At log scale)
    - \( \text{Voltage value (V)} / \text{Reference level (V)} \times 10000 \)
    - (At linear scale)

- **Suffix code**
  - None
  - Value is returned in 0.001 dBm units at log scale.
  - Value is returned in V units at linear scale.

- **start**
  - Specify the loading start position as the number of displayed points from the left edge of the screen.
  - **Range**
    - 0 to 10, 20, 40, 50, 100, 200, 250, 400, 500, 1000, 2000, 5000, 10000, 30000 (MS269xA, MS2830A, MS2840A Only)

- **number**
  - Number of data to be loaded
  - **Range**
    - 1 to 11, 21, 41, 51, 101, 201, 251, 401, 501, 1001, 2001, 5001, 10001, 30001 (MS269xA, MS2830A, MS2840A Only)

- **Convert unit**
  - For conversion into dBµV, dBmV, V, W, dBµV (emf), and dBµV/m at log scale, refer to “Convert unit” of “Parameter” of “SMA/SMA?” command.
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Details

This function writes and queries positive detection trace data when the detection mode is Positive & Negative (Normal mode).

This command is not available in the following cases:

- During the Spurious Emission measurement.
- During the Spectrum Emission Mask measurement.

Example of Use

To set −20 dBm at the first point and set −21 dBm at the second point.

XMD 1,−20000
XMD 2,−21000
XMD? 1,2
> −20000,−21000
XME/XME?
Write and Query Trace Data (Trace E)

Function
This command writes and queries the trace data of Trace E in ASCII format.

Command
XME wpoint, data

Query
XME? start, number

Response
data1, data2, ..., data(n)

Parameter

wpoint Specify the writing position as the number of displayed points from the left edge of the screen.
Range 0 to 10, 20, 40, 50, 100, 200, 250, 400, 500, 1000, 2000, 5000, 10000, 30000 (MS269xA, MS2830A, MS2840A Only)
data Level data to be written
data(n) Queried level data
Resolution Integers in 0.001 dB units (At log scale)
\(|\text{Voltage value (V)} / \text{Reference level (V)}| \times 10000\)
(At linear scale)
Suffix code None
Value is returned in 0.001 dBm units at log scale.
Value is returned in V units at linear scale.
start Specify the loading start position as the number of displayed points from the left edge of the screen.
Range 0 to 10, 20, 40, 50, 100, 200, 250, 400, 500, 1000, 2000, 5000, 10000, 30000 (MS269xA, MS2830A, MS2840A Only)
number Number of data to be loaded
Range 1 to 11, 21, 41, 51, 101, 201, 251, 401, 501, 1001, 2001, 5001, 10001, 30001 (MS269xA, MS2830A, MS2840A Only)

Convert unit
For conversion into dBµV, dBmV, V, W, dBµV (emf), and dBµV/m at log scale, refer to “Convert unit” of “Parameter” of “SMA/SMA?” command.
Details

This function writes and queries positive detection trace data when the detection mode is Positive & Negative (Normal mode).

This command is not available in the following cases:

- During the Spurious Emission measurement.
- During the Spectrum Emission Mask measurement.

Example of Use

To set −20 dBm at the first point and set −21 dBm at the second point.

XME 1,-20000
XME 2,-21000
XME? 1,2
> −20000,-21000
XMF/XMF?
Write and Query Trace Data (Trace F)

Function
This command writes and queries the trace data of Trace F in ASCII format.

Command
XMF wpoint, data

Query
XMF? start, number

Response
data1, data2, ..., data(n)

Parameter

wpoint
Specify the writing position as the number of displayed points from the left edge of the screen.

Range
0 to 10, 20, 40, 50, 100, 200, 250, 400, 500, 1000, 2000, 5000, 10000, 30000 (MS269xA, MS2830A, MS2840A Only)

data
Level data to be written

data(n)
Queried level data

Resolution
Integers in 0.001 dB units (At log scale)
\( \frac{\text{Voltage value (V)}}{\text{Reference level (V)}} \times 10000 \)
(At linear scale)

Suffix code
None
Value is returned in 0.001 dBm units at log scale.
Value is returned in V units at linear scale.

start
Specify the loading start position as the number of displayed points from the left edge of the screen.

Range
0 to 10, 20, 40, 50, 100, 200, 250, 400, 500, 1000, 2000, 5000, 10000, 30000 (MS269xA, MS2830A, MS2840A Only)

number
Number of data to be loaded

Range
1 to 11, 21, 41, 51, 101, 201, 251, 401, 501, 1001, 2001, 5001, 10001, 30001 (MS269xA, MS2830A, MS2840A Only)

Convert unit
For conversion into dB\( \mu \)V, dBmV, V, W, dB\( \mu \)V (emf), and dB\( \mu \)V/m at log scale, refer to “Convert unit” of “Parameter” of “SMA/SMA?” command.
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Details

This function writes and queries positive detection trace data when the detection mode is Positive & Negative (Normal mode).

This command is not available in the following cases:

- During the Spurious Emission measurement.
- During the Spectrum Emission Mask measurement.

Example of Use

To set –20 dBm at the 1st point and –21 dBm at the 2nd point.

`XMF 1,-20000
XMF 2,-21000
XMF? 1,2
> -20000,-21000`
XMZ/XMZ?
Write and Query Trace Data (Gate View)

Function
This command writes and queries the trace data of Gate View in ASCII format.

Command
XMZ wpoint,data

Query
XMZ? start,number

Response
data1,data2,...,data(n)

Parameter

wpoint
Specify the writing position as the number of displayed points from the left edge of the screen.

Range
0 to 10, 20, 40, 50, 100, 200, 250, 400, 500, 1000, 2000, 5000, 10000, 30000 (MS269xA, MS2830A, MS2840A Only)

data
Level data to be written

data(n)
Queried level data

Resolution
Integers in 0.001 dB units (on log scale)

Voltage value (V) / Reference level (V) × 10000
(At linear scale)

Suffix code
None
Value is returned in 0.001 dBm units at log scale.
Value is returned in V units at linear scale.

start
Specify the loading start position as the number of displayed points from the left edge of the screen.

Range
0 to 10, 20, 40, 50, 100, 200, 250, 400, 500, 1000, 2000, 5000, 10000, 30000 (MS269xA, MS2830A, MS2840A Only)

number
Number of data to be loaded

Range
1 to 11, 21, 41, 51, 101, 201, 251, 401, 501, 1001, 2001, 5001, 10001, 30001 (MS269xA, MS2830A, MS2840A Only)

Convert unit
For conversion into dBµV, dBmV, V, W, dBµV (emf), and dBµV/m at log scale, refer to “Convert unit” of “Parameter” of “SMA/SMA?” command.

Details
This function writes and queries positive detection trace data when the detection mode is Positive & Negative (Normal mode).
This command is not available when Gate View is set to Off.
Example of Use

To set −20 dBm at the 1st point and −21 dBm at the 2nd point.

XMZ 1,−20000
XMZ 2,−21000
XMZ? 1,2
> −20000,−21000
**ZEROSPAN**

Zero Span

**Function**

This command sets the frequency span to 0 Hz (time domain display mode).

**Command**

ZEROSPAN

**Details**

During other than the Burst Average measurement, the execution of Zero Span turns off the Measure function. This command is not available when Signal Generator Control is On.

**Example of Use**

To set the span frequency to 0 Hz.

ZEROSPAN